DOCUMENT RESUME

ED 190 189 JC 800 468

AUTHOR Dawson, George G.
TITLE Economics Education in Two-Year Colleges: An Overview and Summary of Research. Research in Economic Education, Report No. 3.
INSTITUTION State Univ. of New York, Old Westbury, N.Y. Center for Business and Economic Education.
SPONS AGENCY Joint Council on Economic Education, New York, N.Y.: New York State Council on Economic Education, Albany.
PUB DATE 80
NOTE 111p.

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Academic Achievement: College Faculty: Community Colleges: Curriculum Research: *Economics Education: *Educational Research: Institutional Research: National Surveys: Research Design: Research Methodology: *Research Needs: *Research Problems: State Surveys: Student Characteristics: Teacher Characteristics: Teaching Methods: *Two Year Colleges

ABSTRACT

Based on a review of 60 studies, this three-part report analyzes the research to date on economics education in the two-year college. After introductory material noting the growing interest in research in economics education, Part I describes the three broad categories into which the studies fall: (1) fact-finding studies, designed to determine information such as course content, instructor characteristics, and the type of department responsible for economics courses: (2) comparative studies, designed to contrast economics instruction at two-year colleges with instruction at four-year institutions: and (3) internal studies, designed to measure the effectiveness of instruction without making a comparison with four-year colleges. This section also provides a summary of the major findings produced by each type of research, a discussion of further investigation needs, and recommendations for improving research methodology based upon flaws in past studies. Part II presents a selected bibliography of 85 relevant research studies, and Part III provides synopses of the objectives, methodology, and results of 60 of these studies. The report concludes with a brief description of the research and publishing goals of the Center for Business and Economic Research at Empire State College. (JP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED190189

RESEARCH

in

ECONOMIC EDUCATION

Report No. 3

ECONOMICS EDUCATION IN TWO-YEAR COLLEGES

George G. Dawson

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

George G. Dawson

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Empire State College
on Long Island
State University of New York
Old Westbury, New York
11568

JC 800 468

ECONOMICS EDUCATION IN TWO-YEAR COLLEGES
An Overview and Summary of Research

George G. Dawson

1980

Research Report No. 3

A Project of the Empire State College Center for Business and Economic Education

with the assistance of

The New York State Council on Economic Education

and

The Joint Council on Economic Education

CONTENTS

RESEARCH ON ECONOMIC EDUCATION IN TWO-YEAR COLLEGES: AN OVERVIEW Page 1

A LIST OF STUDIES ON ECONOMIC EDUCATION IN TWO-YEAR COLLEGES Page 18

SUMMARIES OF SELECTED STUDIES Page 27

THE EMPIRE STATE COLLEGE CENTER FOR BUSINESS AND ECONOMIC EDUCATION STAFF Page 107

RESEARCH ON ECONOMIC EDUCATION IN TWO-YEAR COLLEGES AN OVERVIEW

George G. Dawson

(This introductory statement is similar to a paper presented at a conference on "Strategies for Teaching Principles or Economics in Two-Year Colleges," Dellroy, Ohio, March 31, 1980. The conference was conducted by the Joint Council on Economic Education and the Ohio Council on Economic Education.)

Introduction

There appears to be a growing interest in research in economic education in junior and community colleges, although the amount of research being done at this level is extremely small in comparison with studies at the four-year college and university levels. This report is designed to acquaint interested persons with what has been achieved and to suggest areas for future study.

Those who are paying the bills for education want hard evidence on the effectiveness of our efforts. Whether they be taxpayers, organizations providing grants, accreditation agencies, or whatever, they quite correctly refuse to accept on faith the notion that what we are doing really achieves the goals we are supposed to be reaching. We can no longer get by with subjective impressions about how good we are. Even if these external pressures did not exist, however, there is a second reason for doing research. A well-designed research project may show us how to be more efficient. It might show us how to save time, money, and other resources -- how to get better results, and possibly even how to attract more students.

Research in economic education at the college level has been increasing at an impressive rate. There has been an increase of over 500 percent in the number of studies during the past ten years -- from about 220 studies a decade ago to over 1200 today. Note, also, that this work is being done not only by teachers who need to earn "brownie points" for promotion and tenure, but by such well-established economists as G.L. Bach, Rendigs Fels, Campbell McConnell, and Kenneth Boulding. Now let's see what has been happening in the junior and community colleges.

To my knowledge, there have been at least 85 studies of the teaching of economics or closely related subjects in two-year colleges. (By "two-year college" I mean those offering freshman and sophomore level programs only.) Research on the teaching of economics in two-year colleges represents about seven percent of all research on economics education at the college level. In view of the great importance of the two-year colleges in our system of higher education, and the large number of students attending these institutions, one wonders if these schools are receiving their fair share of attention. In an effort to answer that question I have examined about 60 of the studies. This report provides an overview of my findings.

The studies seem to fall into three broad categories. First, about 25 percent of them might be called <u>fact-finding studies.</u> The primary purpose of these studies is to find out what is being taught in the two-year colleges, what the economics backgrounds of the instructors are, what department is responsible for economics courses, and the like. Some of these studies deal with two-year

colleges exclusively; others are surveys that have covered the four-year colleges and universities as well. Second, about 19 percent of the 85 studies might be called comparison studies. The major purpose of these projects is to compare the effectiveness of programs in two-year colleges with the effectiveness of instruction in four-year schools and universities. Third, there are purely internal studies -- studies in which the researchers have tried to determine whether one approach is more effective than another, whether or not student attitudes are changed by an economics course, and what variables account for student learning of economics, to name a few. These are "purely internal" in the sense that no effort was made to compare the results with those obtained in four-year colleges. Of course, there are studies that do not fit neatly into these categories. Indeed, some contain elements of all three, and I have arbitrarily assigned them to the category that seemed to describe the major thrust of the study. A summary of the research in each category follows.

Fact-finding Studies

The fact-finding studies can be further divided into those dealing with the situation in a single state, those covering a region encompassing several states, and those attempting to obtain the nationwide picture. The single-state studies are most numerous, with California having received the most attention. Indeed, one study entitled "The Status of Economics in Certain Junior Colleges

of California" was made as early as 1941.* I know of only one study covering a region, and that is Jack Sterrett's "A Comparative Study of Junior and Senior College Economic Programs in the Southeast." This can also be categorized as a comparison study, however.

Although the single-state studies may be of interest primarily to those in the states covered, they are also useful to others. They provide valuable information to researchers attempting to cover the entire nation. The states that have been studied are California, Illinois, Maryland, Michigan, Minnesota, New York and Texas.

As for nationwide studies, I believe that there have been four that fall into the fact-finding category. The earliest of these was my own study, made in 1969. Questionnaires were sent to every accredited two-year college listed in the 1968 Directory of American Junior Colleges. The response rate was 32 percent (293 colleges). Although I could not claim that this truly represented the total population, comparisons of my data with single-state studies and other studies of junior colleges suggested that a fairly good representative sample had been obtained. A more recent nationwide study was completed by John A. Dopp in 1977. Dopp sent questionnaires to 26.4 percent of all two-year colleges in the United States (204 schools) and received replies from 30.4 percent

---

* See Bucknell's study listed in the bibliography. Most of the other studies cited in this overview are described in greater detail later in this booklet.

of those polled (62 public colleges). The approach was somewhat similar to mine, although Dopp's study also included four-year colleges. The third study was of a different nature. In 1976 the Joint Council on Economic Education sent questionnaires to 600 community colleges, and received about 150 usable replies. The Joint Council study was a survey of needs as expressed by the economics faculty.

My own study revealed that about 74 percent of the colleges required economics of at least some students (usually business majors), that every respondent offered at least one economics course (usually principles of economics)*, and that about 14 percent of the students in all responding colleges were enrolled in an economics course. (In colleges not requiring economics of any student, however, only about eight percent elected to take a course.) Only two percent of the colleges had separate departments of economics. The subject was usually taught in a social science department or division (50 percent) or in a business department (34 percent). Of the 703 teachers of economics in the 293 colleges, 43 percent were teaching economics exclusively and full-time. Others were either part time instructors or teaching other subjects as well. Only three percent had no degrees in economics, but some had minored in economics or had majored in closely related

---

* The number of courses in economics or closely related subjects ranged from one to 10, with three as the mean. All but one offered the principles of economics course. Other fairly common courses were economic geography, problems of economics, economic history, finance, and money and banking. Some offered such unique courses as "Economic Development and the Texas Gulf Coast."

fields, such as business administration.

Dopp found that 20 percent of his sample offered two types of principles courses (this was true of 12 percent of my sample) -- one for terminal and one for transfer students. The macro to micro sequence was favored by 79 percent. The teachers in Dopp's sample were somewhat better prepared in the discipline than those in my own sample; 15 percent held doctorates and 72 percent had masters degrees. I'll have more to say about Dopp's study in the next section.*

The Joint Council's study was designed to find out what the junior college economics instructors needed, and thus they were asked to rank various possible programs. Top priority was given to regional seminars and workshops on methods of teaching economics in community colleges, and to syllabi representing alternative approaches.

One other study drew upon a nationwide sample of 200 colleges, but dealt with only one topic -- the demand for Ph.D.s in community colleges. Decker asked the respondents to rate five criticisms of the use of Ph.D.s in community colleges and found that the most important reaction was that they have "no commitment and soon leave." Second was their lack of teaching skills. Other criticisms were that they were "too narrowly trained," and that their salary requirements were too high. The administrators who answered this questionnaire said that a Ph.D. with five specialties and some research training was the most relevant preparation for an economics

---

* The fourth study, Jack Friedlander's Science Education in Two-year Colleges: Economics, was received as we were preparing to go to press. His study is briefly described along with the other summaries later in this booklet.

instructor, but Decker found that 90 percent of the newly hired faculty members had masters degrees as their highest formal preparation.

The studies concentrating on a single state tend to reflect the findings of the nationwide studies in a very general way. It should be stressed, however, that one can find differences among states and -- perhaps even more important -- vast differences among colleges within any given state.*

Comparison Studies

The comparison studies can be divided into two types -- fact-finding and evaluation. The former compare two-year colleges with four-year colleges in terms of such things as courses offered, backgrounds of instructors, and teaching techniques used. The latter studies attempt to determine whether instruction in two-year colleges is as effective as instruction in four-year schools.

Dopp's nationwide sample revealed differences between the two-year and four-year colleges in several respects. As might be expected, the four-year colleges are more likely to have separate economics departments, and far more of the four-year instructors held doctorates (72 percent as compared with 15 percent of the junior college economics teachers). Although both types favored the macro to micro sequence, the two-year colleges were more

---

* After completing my nationwide study in 1969 I immediately surveyed the colleges in New York state, using the same questionnaire. New York followed the national pattern in terms of number of courses offered, emphasis upon the principles course, and the extent to which economics is required. A greater percentage of students studied economics, however, and the preparation of the instructors was somewhat stronger in terms of degrees in economics.

strongly supportive of this sequence. While 20 percent of the four-year institutions had one-semester economics courses, only eight percent of the two-year schools offered this type. Teachers in two-year schools had more freedom to select their textbooks, and more junior college instructors used such devices as films, tapes, television, and overhead projectors in addition to the chalkboard. In addition, the two-year college professors were more likely to use written course objectives, to require term papers (19 percent as compared with 12 percent of the four-year instructors), to assign magazines and newspapers, to give weekly quizzes, and to employ such innovative techniques as peer tutoring and self-paced instruction.

A study made by the Economics Department of the University of Cincinnati in 1974 yielded results similar to those found by Dopp. Again, the masters degree was the most common degree for two-year college economists, and these teachers were more inclined to use a variety of teaching methods and materials. Respondents from two-year institutions gave stronger support to the idea of including the development of teaching skills in the training of an economics Ph.D., and were less likely to favor training in research, mathematics, and statistics. The two-year respondents were twice as likely to support training in administration for college teachers. Studies covering a single state or region have obtained results similar to those yielded by the nationwide projects.

Generally, research on effectiveness of instruction shows that students in two-year colleges know less economics and learn less

than students in four-year schools and universities. My own study of the teaching of economics in some two-year colleges in the New York metropolitan region in 1969-70 showed that the students were learning less than students taking principles courses in four-year colleges. Indeed, they knew less at the end of the course than the four-year students knew at the beginning. Of course, admissions standards were much higher in the four-year institutions. It should be noted, too, that there were students in the two-year schools who were on a par with some of the best students in the colleges and universities. Replications of this study in a few other states produced similar results.

Some researchers have tried to find the reasons why junior college students did not perform as well as those in four-year schools. After making a study of the effectiveness of programmed instruction, Lumsden felt that the quality of instruction might be the explanation. The junior college students participating in his study, however, had spent less time studying if they were part of the experimental group using the programmed material (16 hours as compared with 27 for the control students). The control section in the junior college did about as well as the control sections in the universities. This is what led Lumsden to opine that the teacher of the control section might have been a better instructor. When polled in regard to their preferences, the junior college students were much more inclined to favor programmed instruction than were the university students.

Weidenaar and Dodson tested nearly 700 junior college students

in ten schools in eight states. Finding that these students did not do as well as a sample of 306 university students, they noted that the ACT scores of the latter were considerably higher. They then adjusted the scores of the junior college students by raising them five points to "achieve a common basis for comparability." Although this raised the scores on the Test of Understanding in College Economics by over two points, the post-test mean of the four-year students was still much higher (20.0 as compared with 16.5 for the junior college students). All students were using similar textbooks and materials, and Weidenaar and Dodson thus hypothesized that differences among teachers might explain the poorer showing of the two-year students. (They also tested the junior college instructors and found that there was a positive and statistically significant relationship between instructor preparation and student performance on the TUCE. The greater the teacher's formal preparation and experience, and the higher he scored on the TUCE, the better the scores of the students.)

Lewis, Wentworth, and Orvis compared students in junior colleges taking the transfer course with those taking the terminal economics course, but found no significant difference on their post-test performance as measured by the TUCE. When compared with students in four-year schools, however, the junior college group achieved lower pre-test scores, lower post-test scores, and lower gain scores. It was the guess of these researchers that the junior college instructors expected less of their students than did the four-year professors and thus predisposed their students "to lower

their own goals and contribute less to their own achievement."

The notion that economics instruction in two-year colleges is inferior has not gone unchallenged. Labinski tested students in a principles of economics course in Rochester Community College in Minnesota and compared the results with the TUCE scores of four-year college students. Although the junior college students had a higher pre-test mean and a slightly lower post-test mean, the post-test difference was not significant (at the .05 level of probability). The four-year students had thus made greater relative improvement. Labinski noted, however, that his students had performed better than those involved in the Weidenaar-Dodson Study. Reluctant to accept the hypothesis that junior college instructors were inferior or that they had conditioned their students to lower their goals, Labinski argued that junior college students are more "occupational oriented" and more concerned with practical applications. Thus, the TUCE may not measure the objectives that are common in two-year economics courses and may discriminate against students who hold such objectives. He also noted that there is great variation among two-year colleges with respect to quality of instruction.

In a somewhat related subject area, principles of marketing, LaGarce and Howritz found no difference between the entry-level and exit-level knowledge of students attending Meramac Junior College and students enrolled at Southern Illinois University. It appears, then, that generalizations are dangerous and that a great deal of further research is needed to determine the variables that

account for student differences across colleges.

Internal Studies

There is great variety in these studies, and many of them are similar to research done in the four-year colleges. For example, efforts have been made to ascertain the effects of such variables as gender, age, parents' levels of education, family income, and urban or rural background on the learning of economics as measured by some sort of objective test, usually a standardized instrument such as the Test of Understanding in College Economics (TUCE). A few have broken new ground, such as Miller's attempt to find out if student and instructor learning preferences affect student learning of economics.

It is difficult to form generalizations based on these studies because they differ in terms of their research designs, the statistical techniques employed in analyzing the data, the sample populations, the foci of the studies, ad infinitum. Many studies seem to support the findings of four-year research in regard to the importance of academic ability as measured by GPAs, ACT scores, or some other indicator of such ability. Of course, this variable is usually most significant in explaining performance on economics tests. Students often favor the experimental methods, such as games and simulations, programmed materials, or small group meetings, even if these techniques do not result in greater learning as compared with the conventional lecture approach. From this point on, however, the findings are many and varied.

Males usually do better than females in the four-year colleges,

but this rarely seems to be the case in the two-year schools. (One study did show that males were more interested in economics, a factor that may help to explain the male superiority in learning economics that has appeared so often in the four-year institutions.) Older students sometimes do better than their younger colleagues, and the family income and education of parents have been significant in some cases. Not surprisingly, the amount of time spent in studying and the number of lectures attended can have an effect on learning. Miller found this to be the case, but his hypothesis that students would learn more if their learning preferences coincided with the teacher's preferred mode of instruction was not sustained.

Garraty found that TIPS (Teaching Information Processing System), in which computers are used to help individualize instruction, did not prove to be better than the conventional approach, but Thompson concluded that TIPS did help to raise scores. These conflicting results may be explained by differences in the research design and in the student populations tested.

As with many of the studies made in four-year colleges, the results are sometimes inconclusive. Philips could not prove that the use of instructional objectives increased student learning, but problems in controlling his experiment may account for this. Thompson's study of "TIPS" suggested that the experimental treatment--the use of programmed texts -- did not give the students an advantage over those receiving conventional instruction, but they did seem to retain their knowledge longer. Disaggregating the students by such criteria as academic ability may be advisable, for at least

one study showed that the experimental treatment was more effective with low-ability students than with high-ability students.

Conclusion

Some interesting and useful work has been done, but it is clear that we have barely begun to scratch the surface. Many studies have suffered from inadequate research designs, limited samples, questionable statistical techniques, and difficulties in exercising control over the experimental situations. We know that two-year college students can and do learn economics, but we are not sure how. There is evidence that some experimental techniques produce better results than traditional methods, but we are not sure which ones are best, and under what conditions or with what types of students. We have some ideas as to why junior college students do not usually perform as well as students in four-year institutions but the reasons have not yet been firmly established. In short, there is an enormous amount of work to be done in the two-year colleges. College administrators or outside agencies should be urged to support the necessary research, and economists in the junior and community colleges -- in spite of the fact that most are probably already overburdened -- should attempt to build some sort of research and evaluation into their instructional programs.

What sort of research should one do? The kinds of problems to consider are too numerous even to mention.* One thing that is needed is replication of other studies. Do the findings of other

---

* See John J. Siegfried and Rendigs Fels, "Research on Teaching College Economics: A Survey," Journal of Economic Literature, September 1979, pp. 923-969. This summarizes many previous studies and research methods.

researchers apply to another college or a different situation? Various teaching techniques can be tested systematically, or -- better still -- various combinations of methods might be tried and evaluated. More "lasting effects" studies are needed at the two-year college level. The experimental treatment might be no better than the regular approach in terms of post-test scores or gain scores, but the experimental group might remember more economics a year later. One type of study that needs to be done is a follow-up of two-year college graduates after they get into a four-year institution. How do they do in comparison with other students, ceteris paribus? Little has been done to measure the effects of courses other than the principles course. How effective are the courses in Money and Banking, Consumer Economics, etc.? Does taking an economics course affect what students do in other courses? Researchers have tried to find out if taking other courses, (such as mathematics) affected student performance in economics courses, but no one (to my knowledge) has gone in the other direction.

Finally, those who do decide to undertake a research project are advised to do the following:

1. Survey the literature. Find out what others have done. Look through all the issues of The Journal of Economic Education, for example, and read the Siegfried and Fels article cited earlier. Read the summaries of the studies appearing in this booklet.

2. Don't take previous conclusions at face value. Many studies have suffered from poor designs, inappropriate test instruments, inadequate samples, poor control, and the like. Note, too, that times have changed. What might have been true ten years ago may not apply to today's students.

3. Obtain expert advice. Statisticians, econometricians, educators, and psychometricians can provide valuable help to the researcher who is not trained in these disciplines.

4. Ask others to review your research design. Draw up a tentative research design and send it to the Joint Council, to me, or to others who have done research of a similar nature. We might be able to save you a great deal of agony before you plunge into a project that may have some design flaws.

5. Use care and discretion in selecting measurement instruments. Some of the tests used by others may not be appropriate for your own classes. Be sure that any test you use covers the content you included in your course. Try to use up-to-date tests.

6. Avoid technical flaws. Again, see the Siegfried-Fels article, and several issues of The Journal of Economic Education -- especially the Fall 1976 issue ("Special Section" by Becker, Soper, and Highsmith), and the Spring 1978 issue (article by Craig Swan). Be aware of such problems as sampling bias, specification errors, multicollinearity, simultaneous equations problems, and inappropriate use of OLS.

7. Disaggregate your data. The TUCE has three types of questions -- (1) recognition and understanding, (2) simple application, and (3) complex application. Students might do well on one type, but not on another. You might also provide break-downs by student ability. A technique that works well with high-ability students may not be suitable for low-ability students, or vice-versa. There can be breakdowns by course topics (did they learn supply and demand but not money and banking?), by student's major field, and many others.

8. Include cost/benefit analysis in your study. A new teaching technique may turn out to be cheaper than the conventional approach; or the experimental treatment might yield higher scores on the TUCE but be too expensive to adopt.

9. Don't claim too much. Most economic education research suggests one thing or another; very little research proves anything.

There are many other caveats, of course, but space does not permit a thorough discussion of them. No one has yet developed the

perfect research design or conducted the perfect research project. Those with an interest in economics instruction in two-year colleges are urged to plunge right into the cold but exhilarating waters of research and to share their results with colleagues in the economic education network.

****

Note: As we were preparing to send this report to the printer, we received a copy of the manuscript of an important new study, Jack Friedlander's Science Education in Two-year Colleges: Economics (Los Angeles: Center for the Study of Community Colleges, and ERIC Clearinghouse for Junior Colleges, University of California, 1980). This is a fact-finding study based upon a national sample of two-year colleges. It provides more recent information than earlier fact-finding studies and includes aspects not found in any other study. A brief summary of this report is provided later in this booklet.

A LIST OF STUDIES ON ECONOMIC EDUCATION IN TWO-YEAR COLLEGES

Note: In compiling this list an effort was made to include studies which in any way deal with the teaching of economics or closely related subjects in junior and community colleges. The studies vary greatly in terms of their subject matter, scope, complexity, research designs and usefulness. No attempt was made to judge the quality of a study before including it in this list. It was not possible to obtain a copy of every study listed. Thus in some cases the only clue to the content is the title. It is not claimed that this is a complete list of all research at the two-year college level, and the compiler would appreciate it if readers would supply him with the titles that have been overlooked.

An asterisk before the author's name indicates that the study has been summarized in this booklet.

Albany Center for Economic Education, THE INTRODUCTORY COURSE IN ECONOMICS IN THE TWO-YEAR COLLEGE: A JOURNAL OF THE TENTH ANNUAL CONFERENCE FOR COLLEGE ECONOMISTS. Albany: Center for Economic Education, 1969. 38pp.

*Alvey, George, et. al., ECONOMIC EDUCATION IN AMERICA: A PLAN FOR INCREASED EFFECTIVENESS. New York: NYU Business Education Program, 1978. 42pp. (See pp. 13 ff. for two-year college study.)

*Baer, John W., LEVEL OF ECONOMIC THEORY IN MARYLAND COMMUNITY COLLEGES. Arnold, Maryland: Anne Arundel Community College, n.d. 11pp.

*Barr, Saul Z., and Carr, Glenna D., "Influences of Teaching Methods and Personality on Junior College Students in Macroeconomic Principles." THE JOURNAL OF ECONOMIC EDUCATION. Spring, 1979. Vol. X,No. 2., pp. 62-65.

*Barr, Saul Z., INFLUENCES OF TEACHING METHODS AND PERSONALITY ON UNDERSTANDING COLLEGE ECONOMICS. Ed.D. study. Gainesville: The University of Florida, 1978. (Also see THE JOURNAL OF ECONOMIC EDUCATION, Spring, 1979, as cited above.)

Barr, Saul Z., RESEARCH AND PRACTICE IN INTRODUCTORY PRINCIPLES IN ECONOMICS AT TWO-YEAR COLLEGES. Towson, Maryland: Council on Economic Education in Maryland, Towson State University, 1980. 7pp. (Research summarized in this paper is described in this booklet.)

*Becker, William E., and Salemi, Michael K., "The Learning and Cost Effectiveness of AVT Supplemented Instruction: Specification and Misspecification of Learning Models." THE JOURNAL OF ECONOMIC EDUCATION, Spring, 1977. Vol. VIII, No. 2, pp. 77-92.

*Bellico, Russell, "Prediction of Undergraduate Achievement in Economics." THE JOURNAL OF ECONOMIC EDUCATION, Fall, 1972. Vol. IV, No. 1, pp. 54-55.

Buchnell, LeRoy, THE STATUS OF ECONOMICS IN CERTAIN JUNIOR COLLEGES OF CALIFORNIA. M.S. in Education. Los Angeles: University of Southern California, 1961. 74pp.

*Carr, Glenna D., and Barr, Saul Z., PERSONALITY AS A FACTOR IN LEARNING COLLEGE MACROECONOMICS: USING THE MYERS-BRIGGS TYPE INDICATOR. Towson, Maryland: Towson State University, 1979. 11pp. (To be published in THE JOURNAL OF EDUCATIONAL PSYCHOLOGY.)

*Chesney, Michael T., A CRITICAL ANALYSIS OF ECONOMICS PROGRAMS IN TEXAS JUNIOR COLLEGES. Ph.D. thesis. Austin: University of Texas, 1979.

Curtis, Alan R., A STUDY OF THE PERSONAL-FINANCE KNOWLEDGES POSSESSED BY SELECTED COMMUNITY COLLEGE BUSINESS MAJORS AS RELATED TO CERTAIN FACTORS. Storrs: University of Connecticut, 1977.

Dahlquist, John P., THE CHALLENGE OF TEACHING ECONOMICS PRINCIPLES COURSES IN THE URBAN COMMUNITY COLLEGE. San Jose, Calif.: San Jose State College, M.A. thesis being planned in 1973. (No information on completion of this study.)

Davis, Walter A., A DESCRIPTIVE STUDY OF THE CONSUMER EDUCATION COURSES OFFERED BY THE PUBLIC COLLEGES OF THE STATE OF CALIFORNIA JUNIOR COLLEGE SYSTEM. M.A. thesis. San Francisco State College, 1971.

*Dawson, George G., ECONOMICS IN NEW YORK'S JUNIOR COLLEGES. New York: NYU Center for Economic Education, 1969. 7pp.

*Dawson, George G., ECONOMICS IN TWO-YEAR COLLEGES: A NATIONWIDE SURVEY. New York: NYU Center for Economic Education, 1969. See ERIC #ED 030 435. For a summary, see Dawson's "Economic Education in Junior Colleges: Economics Courses Offered and Required," THE JOURNAL OF ECONOMIC EDUCATION, Fall, 1970. Vol. II, No. 1, pp. 14-21.

*Dawson, George G., and Bernstein, Irving, AN EVALUATION OF INTRODUCTORY ECONOMICS COURSES IN SELECTED JUNIOR COLLEGES. New York: NYU Center for Economic Education, 1970. Also see their THE TEACHING OF ECONOMICS IN SELECTED JUNIOR COLLEGES OF METROPOLITAN NEW YORK. New York: New York City Council on Economic Education, 1970. 5pp.

*Dawson, George G., RESEARCH ON ECONOMIC EDUCATION IN TWO-YEAR COLLEGES. Old Westbury, New York: Empire State College Center for Business & Economic Education, 1980. 19pp. (Paper presented at a conference on "Strategies for Teaching Principles of Economics in Two-Year Colleges" at Delroy, Ohio, March 31, 1980.)

*Decker, Robert L., "The Demand for Economics Ph.D.s in Community Colleges." THE JOURNAL OF ECONOMIC EDUCATION, Spring, 1975. Vol. VI, No. 2, pp. 127-128.

*Dopp, John A., SURVEY OF THE CONTENT AND STRUCTURE OF PRINCIPLES OF ECONOMICS COURSES. Bethlehem, Pa.: Lehigh University, 1977. (Doctor of Arts dissertation.)

Ebey, George, ECONOMIC EDUCATION IN CALIFORNIA JUNIOR COLLEGES: AN EXPLORATORY STUDY. Modesto: California Junior College Assn., U.S. Bureau of Research. (See Thompson, Walthal, and Merson for similar research.)

Edwards, Keith J., STUDENTS' EVALUATIONS OF A BUSINESS SIMULATION GAME AS A LEARNING EXPERIENCE. Report No. 121. Baltimore: Center for Social Organization of Schools, The Johns Hopkins University, 1971. 28pp.

Elmgren, Chloe I., CASE STUDIES OF JUNIOR COLLEGE INTRODUCTORY ECONOMICS COURSES, TERMINAL AND TRANSFER. Tentative title of Ph.D. thesis being planned. University of Minnesota, 1971. (No information on completion.)

Gallo, Joseph C., and Goettle, Richard J., GRADUATE PREPARATION OF ECONOMISTS TO TEACH IN UNDERGRADUATE INSTITUTIONS. Cincinnati: University of Cincinnati, 1973. (See next study listed.)

*Gallo, Joseph C., Skinner, Gordon S., and Goettle, Richard J., CHARACTERISTICS OF ECONOMICS DEPARTMENTS IN TWO YEAR AND FOUR YEAR INSTITUTIONS. Cincinnati: University of Cincinnati, 1974. 9pp.

*Gallo, Joseph C., Skinner, Gordon S., and Goettle,Richard J., THE GRADUATE PREPARATION OF THE COLLEGE PROFESSOR OF ECONOMICS. Cincinnati: University of Cincinnati, 1974. 11pp.

*Garraty, David G., AN INVESTIGATION OF THE EFFECTS OF CONSUMER ECONOMICS CLASSES ON ATTITUDES TOWARD THE MARKETPLACE. Hampton, Va.: Thomas Nelson Community College, 1979. 9pp.

*Garraty, David G., TIPS IN THE SMALL CLASS SETTING: A CONTROLLED EXPERIMENT. Hampton, Va.: Thomas Nelson Community College, 1978. 4pp. + appendices. (Paper presented at the Virginia Association of Economists Annual Meeting, March 31, 1978.)

Imler, J. Donald, RECENT TRENDS IN TEACHING ECONOMICS AT THE JUNIOR COLLEGE LEVEL. M.S. in Education. Los Angeles: University of Southern California, 1935. 121pp.

*Joint Council on Economic Education, AN ANALYSIS OF NEEDS FOR THE IMPROVEMENT OF INSTRUCTION IN ECONOMICS BY COMMUNITY COLLEGE FACULTY: A REPORT TO THE COMMUNITY COLLEGE ADVISORY COMMITTEE OF THE JOINT COUNCIL ON ECONOMIC EDUCATION. New York: Joint Council on Economic Education, 1976. 22pp.

Kastner, Harold H., ECONOMIC IMPLICATIONS OF COMMUNITY JUNIOR COLLEGE EDUCATION. Doctoray study. Gainesville: University of Florida, 1962.

*Key, Charles M., EVALUATION OF KNOWLEDGES AND UNDERSTANDINGS ACQUIRED BY STUDENTS IN COLLEGIATE ELEMENTARY ECONOMICS APPOSITE TO A SELECTED PROBLEM. Ed.D. study. Bloomington: Indiana University, 1969. 271pp. University Microfilms No. 70-7991. Also see his articles in the JOURNAL OF BUSINESS EDUCATION, March , 1970, and BUSINESS EDUCATION FORUM, October, 1970.

*Kim, Paul Y., AN EVALUATION OF TWO-YEAR COLLEGE STUDENT ACHIEVEMENT ON THE TEST OF UNDERSTANDING IN PERSONAL ECONOMICS. Rock Island, Illinois: Augustana College, 1975. 12pp. Also see his article in THE JOURNAL OF ECONOMIC EDUCATION, Spring 1976, Vol. VII, No. 2, pp. 104-110.

Koch, James V., THE FACULTY OF TWO-YEAR COLLEGES: THE CASE OF ECONOMICS. Normal: Illinois State University, 1968. 10pp. (See articles about junior colleges in THE JOURNAL OF ECONOMIC EDUCATION, Fall 1970, for the results of this study.)

*Koscielniak, James, "The Nature of Introductory Economics Courses," COMMUNITY COLLEGE SOCIAL SCIENCE QUARTERLY, Summer-Fall 1975, pp. 52-54; 82.

*Labinski, P.F., "The Effectiveness of Economics Instruction in Two-Year Colleges Revisited," THE JOURNAL OF ECONOMIC EDUCATION, Spring 1978, Vol. IX, No. 2, pp. 102-106.

*Labinski, P.F., STUDENT ATTITUDE TOWARDS ECONOMICS AT ROCHESTER STATE JUNIOR COLLEGE. Ed.S. study. Mankato, Minnesota: Mankato State University, 1973. 57pp.

*LaGarce, Raymond, and Horwitz, Pamela S., "A Comparative Analysis of Student Achievement in 'Principles of Marketing' at a Junior College and a Four-Year University," THE JOURNAL OF ECONOMIC EDUCATION, Fall 1978, Vol. X, No. 1, pp. 50-51.

*Lewis, Darrell R., A DECADE OF ECONOMIC EDUCATION IN MINNESOTA: RETROSPECT AND PROSPECT. Minneapolis: Minnesota State Council on Economic Education, 1967. (Relevant portions are included in the other studies made by Lewis and summarized in this booklet.)

*Lewis, Darrell R., "The Preparation and Professionalization of Economics Instructors in Two-Year Colleges," THE JOURNAL OF ECONOMIC EDUCATION, Fall 1970, Vol. II, No. 1, pp. 22-30.

*Lewis, Darrell R.; Wentworth, Donald R.; and Orvis, Charles C., "Economics in the Junior Colleges: Terminal or Transfer?" The JOURNAL OF ECONOMIC EDUCATION, Spring 1973, Vol. IV, No. 2, pp. 100-110.

Linn, John Howard, AN ANALYSIS OF THE TEACHING OF CERTAIN ECONOMIC TOPICS IN THE CALIFORNIA PUBLIC JUNIOR COLLEGES. Ed.D. study. Los Angeles: University of Southern California, 1958. 188pp.

Linnaus, Vernon F., SURVEY OF THE TEACHING OF ELEMENTARY ECONOMICS ON THE TWO-YEAR COLLEGE LEVEL. Coolidge, Arizona: Central Arizona College, 1971. (Reportedly in progress. No evidence of completion.)

*Lumsden, Keith, "The Effectiveness of Programmed Learning in Elementary Economics." THE AMERICAN ECONOMIC REVIEW. May, 1967. Pp. 652-659. Also see his "Technological Change, Efficiency, and Programming in Economic Education," in Keith Lumsden, ed., NEW DEVELOPMENTS IN THE TEACHING OF ECONOMICS. Prentice-Hall, 1967.

*Machen, Willard, A SURVEY OF ECONOMIC EDUCATION IN SELECTED TEXAS JUNIOR COLLEGES. Masters thesis. Lubbock: Texas Tech University, 1972.

Manes, Charles V., GENERAL EDUCATION OBJECTIVES OF ECONOMICS IN THE PUBLIC JUNIOR COLLEGE. Ed.D. study. Denver, Colorado: University of Denver, 1957. 377pp.

*Memar, Ahmad B., A DETERMINATION OF MINIMUM ECONOMIC UNDERSTANDINGS NEEDED BY COMMUNITY/JUNIOR COLLEGE GRADUATES IN MID-MANAGEMENT IN TEXAS. Doctoral study in progress in 1980. Houston, Texas: University of Houston College of Education, Dept. of Curriculum and Instruction.

Merson, T.B., and Elby, G.M., ECONOMIC EDUCATION IN CALIFORNIA JUNIOR COLLEGES: AN EXPLORATORY STUDY. Modesto: California Junior College Association, 1967.

*Miller, Jimmie C., ANALYSIS OF THE EFFECTS OF STUDENT LEARNING PREFERENCES, STUDY TIME, LECTURES ATTENDED AND ACHIEVEMENT IN ECONOMICS. East Peoria: Illinois Central College, 1979. 17pp. (Paper presented at the 49th Annual Conference of the Southern Economic Association, Atlanta, Georgia, November 7-9, 1979.)

*Miller, Jimmie C., STUDENT LEARNING PREFERENCES, INSTRUCTOR TEACHING PREFERENCES AND ACHIEVEMENT IN ECONOMICS. East Peoria; Illinois Central Community College, 1978. 8pp. (Paper presented at the Conference on Innovations in Teaching the Introductory Course, Virginia Polytechnic University, April, 1978. Also published in Jeff R. Clark and W. Robert Sullins, eds., ECONOMICS: INNOVATIONS IN TEACHING THE INTRODUCTORY COURSE. New York: Joint Council on Economic Education, 1978.

*Miller, Jimmie C., STUDENT VALUES AND ACHIEVEMENT IN ECONOMICS. East Peoria: Illinois Central Community College, 1975. 14pp. + appendix.

Moran, James P., A ROLE THEORY INTERPRETATION OF THE PREPARATION OF NEW YORK STATE JUNIOR COLLEGE ECONOMICS TEACHERS. University of Ottawa, 1967.

Niss, James, ECONOMICS EDUCATION IN ILLINOIS COMMUNITY COLLEGES. Western Illinois University, n.d.

*Pasut, James E., A COMPARISON BETWEEN ECONOMIC UNDERSTANDINGS OF IOWA COMMUNITY COLLEGE STUDENTS WITH STUDENTS AT IOWA'S THREE STATE UNIVERSITIES AND NATIONAL NORMS ON THE JOINT COUNCIL ON ECONOMIC EDUCATION'S "TEST OF UNDERSTANDING IN COLLEGE ECONOMICS." Iowa City: University of Iowa Dept. of Business Education, reported in progress in 1974.

*Phillips, James A., CLASS SIZE EFFECT ON COMMUNITY COLLEGE ECONOMIC EDUCATION. Cypress, California: Cypress Junior College, 1971. 8pp.

Phillips, James A., THE EFFECT OF INSTRUCTIONAL OBJECTIVES TREATMENT ON ACHIEVEMENT SCORES IN ECONOMICS FOR SELECTED JUNIOR COLLEGE STUDENTS. Ph.D. thesis. Los Angeles: University of Southern California, 1971.

*Phillips, James A., "Instructional Objectives and Economic Understanding," THE JOURNAL OF ECONOMIC EDUCATION, Spring 1972, Vol. III, No. 2, pp. 112-117.

*Phillips, James A., "Instructional Objectives in Community College Economic Education," THE JOURNAL OF ECONOMIC EDUCATION, Spring 1974, Vol. V, No. 2, pp. 116-118.

*Phillips, James A., INSTRUCTIONAL OBJECTIVE PRACTICE IN COMMUNITY COLLEGE ECONOMIC EDUCATION. Cypress, California: Cypress College, 1972, 8pp. (Also see ERIC Clearinghouse for Junior Colleges, 1971, ED-057-788.)

*Phillips, James A., SABBATICAL LEAVE REPORT: PART II -- COLLEGE VISITS. Cypress, California: Cypress Junior College, 1972. 41pp.

Poland, Robert P., IMPLICATION OF SOCIAL, ECONOMIC, AND TECHNICAL TRENDS ON BUSINESS PROGRAMS IN THE PUBLIC COMMUNITY COLLEGES OF MICHIGAN. East Lansing: Michigan State University, 1971.

Ragsdale, Gary R., AN EXPERIMENTAL STUDY TO DETERMINE THE EFFECTIVENESS OF TEACHING JUNIOR COLLEGE INTRODUCTION TO BUSINESS THROUGH DIFFERING INSTRUCTIONAL METHODOLOGY. Ed.D. study. Tempe: Arizona State University, 1971.

*Reichert, Edwin Clark, THE EFFECT OF HIGH SCHOOL ECONOMICS UPON SUCCESS IN JUNIOR COLLEGE ECONOMICS. M.A. thesis. Minneapolis: University of Minnesota, 1933. 39pp.

*Riddle, Terry, AN INSTRUMENT FOR MEASURING STUDENT OPINION ON ECONOMIC ISSUES. Richmond, Va.: J. Sargeant Reynolds Community College, 1977. 25pp. (Paper presented at Annual Meeting of the Virginia Association of Economists. Also see his article "Student Opinions on Economic Issues: The Effects of an Introductory Economics Course" in THE JOURNAL OF ECONOMIC EDUCATION, Spring 1978, Vol. IX, No. 2, 1978. Pp. 111-114.)

*Riddle, Terry L, and Frary, Robert B, RELATIONSHIPS BETWEEN ECONOMIC LITERACY AND OPINIONS ON ECONOMIC ISSUES. Lynchburg: Central Virginia Community College, 1980. 4pp. + tables and bibliography.

Rieger, Arnold M., THE DEVELOPMENT OF AN INSTRUCTIONAL SOUND FILMSTRIP AND A MANUAL FOR A BASIC UNIT IN MONEY AND BANKING COURSES AT TWO-YEAR COLLEGES. ED.D. study reported in progress in 1974, New York: NYU School of Education. (No evidence of completion.)

*Schoenberger, Richard, EVALUATION OF THE LEICESTER PROJECT: AN EXPERIMENT IN THE TEACHING OF ECONOMIC PRINCIPLES. Worcester, Mass.: Clark University, 1971.

Smith, Stephen, and Bumpass, Donald L., THE PERFORMANCE OF PRINCIPLES OF ECONOMICS STUDENTS AT OSCAR ROSE JUNIOR COLLEGE. Midwest City, Oklahoma: Oscar Rose Junior College, 1974. 5pp.

*Sterrett, Jack, A COMPARATIVE STUDY OF JUNIOR AND SENIOR COLLEGE ECONOMIC PROGRAMS IN THE SOUTHEAST. Brunswick, Ga.: Brunswick Junior College, 1979. 61pp. (Paper presented at the meeting of the Southern Economic Assn., Nov. 8, 1979. Also see Saul Barr, ed., ECONOMIC EDUCATION IN THE COMMUNITY/JUNIOR COLLEGE. Towson, Md.: Towson State University, 1979.)

Sterrett, Jack, and Barr, Saul Z., A COMPARATIVE STUDY OF JUNIOR AND SENIOR COLLEGE ECONOMIC PROGRAMS IN THE SOUTHEAST. Towson, Md.: Towson State University, 1979. 5pp. (Brief summary of Sterrett's study cited immediately above.)

*Streifford, David M., PROGRAMMED LEARNING IN ELEMENTARY ECONOMICS COURSES: AN EXPERIMENT AND EVALUATION. St. Louis, Mo.: Forest Park Community College, 1971. 9pp. + appended statistical data. (Also see his article in COMMUNITY COLLEGE SOCIAL SCIENCE QUARTERLY, Winter, 1972.)

*Symmes, S. Stowell, ECONOMICS INSTRUCTION IN NEW JERSEY'S JUNIOR COLLEGES: AN APPRAISAL OF AN ON-GOING CURRICULUM PROJECT. New York: New York University, 1970. 19pp. Unpublished paper.

*Thompson, Fred A.; Walthal, W.A.; and Merson, T.B., ECONOMICS EDUCATION IN CALIFORNIA JUNIOR COLLEGES: AN EXPLORATORY STUDY. Modesto: California Junior College Assn., 1967. (Also published by U.S. Office of Education, Washington, D.C., 1967. 112pp.)

*Thompson, Fred A., GAMING VIA COMPUTER SIMULATION TECHNIQUES FOR JUNIOR COLLEGE ECONOMIC EDUCATION. Riverside, Calif.: Riverside City College, 1968. 68pp.

*Thompson, Fred A., "The Interaction of Cognition and Affect: The Issue of Free Trade," THE JOURNAL OF ECONOMIC EDUCATION, Spring 1973, Vol. IV, No. 2, pp. 111-115.

*Thompson, Fred A., "Problems and Prospects of Economics Education in Community Junior Colleges," THE JOURNAL OF ECONOMIC EDUCATION, Fall 1970, Vol. II, No. 1, pp. 31-38.

*Thompson, Fred A., "TIPS" IN A COMMUNITY COLLEGE SETTING. Riverside, California: Riverside City College, 1978. 18pp. + appendices. (Also see ERIC Document No. ED 142 248, TIPS IMPLEMENTATION AT RIVERSIDE CITY COLLEGE, 1976-77: AN EXPERIMENT IN EDUCATIONAL INNOVATION, 36pp; and J.R. Clark and Robert J. Sturm, eds., ECONOMICS: INNOVATIONS IN TEACHING THE INTRODUCTORY COURSE. New York: Joint Council on Economic Education, 1979, pp. 53-78.)

Vance, J.J., A PROPOSED PROGRAM OF ECONOMICS EDUCATION AS PART OF GENERAL EDUCATION IN THE JUNIOR COLLEGES. Laramie: University of Wyoming College of Education, Bureau of Educational Research and Service, 1952. 70pp. (Portion of a thesis.)

Walstad, William B., THE EFFECTIVENESS OF AN AUDIOVISUAL TUTORIAL APPROACH FOR TEACHING INTRODUCTORY ECONOMICS IN SELECTED TWO YEAR COLLEGES. Masters thesis. Minneapolis: University of Minnesota, 1975. Also see his paper AN ALTERNATIVE TO THE CONVENTIONAL: THE AUDIO-VISUAL-TUTORIAL METHOD FOR TEACHING INTRODUCTORY COLLEGE ECONOMICS. Minneapolis: University of Minnesota Center for Economic Education, 1976. 15pp. (ERIC Document No. 124-494.)

*Weidenaar, Dennis J., and Dodson, Joe A., THE EFFECTIVENESS OF ECONOMICS INSTRUCTION IN TWO-YEAR COLLEGES. Lafayette, Indiana: Purdue University, 1971. 22pp. (Also see the Fall 1972 issue of THE JOURNAL OF ECONOMIC EDUCATION, Vol. 4, No. 1, pp. 5-12.)

Wentworth, Donald R., THE EFFECTIVENESS OF A LEARNING GAME FOR TEACHING INTRODUCTORY ECONOMICS IN SELECTED TWO-YEAR COLLEGES. Doctoral study. Minneapolis: University of Minnesota, 1972.

*Wentworth, Donald R., and Lewis, Darrell R., AN EVALUATION OF A SIMULATION GAME FOR TEACHING INTRODUCTORY ECONOMICS IN JUNIOR COLLEGES. Minneapolis: University of Minnesota, 1972. 25pp. (Also see the JOURNAL OF EXPERIMENTAL EDUCATION, Winter, 1973, pp. 87-96, and THE JOURNAL OF ECONOMIC EDUCATION, Spring 1975, Vol. VI No. 2, pp. 113-119.)

Woodard, F.O., TEACHING ECONOMICS IN THE JUNIOR COLLEGE. Wichita: Wichita State University, reported in progress in 1969. (No evidence of completion.)

Wright, W.G., AN EXPERIMENT IN A MULTI-MEDIA BEHAVIORAL OBJECTIVES APPROACH TO TEACHING FIRST-YEAR COLLEGE ECONOMICS. Welland, Ontario: Niagara College of Applied Arts and Technology, 1972.

Young, Gary Frank, A COST AND EFFECTIVENESS ANALYSIS OF THE BEHAVIORAL OBJECTIVE LECTURE APPROACH AND THE INDIVIDUALIZED SELF-PACED APPROACH TO TEACHING PRINCIPLES OF ECONOMICS. Doctoral study. Ruston: Louisiana Tech University, 1977.

ADDENDA

*Friedlander, Jack, SCIENCE EDUCATION IN TWO-YEAR COLLEGES: ECONOMICS. Los Angeles: Center for the Study of Community Colleges, and ERIC Clearinghouse for Junior Colleges, University of California, 1980. 70pp. (Manuscript.)

Healey, R.M., "Economic Understandings of Junior College Students." BUSINESS EDUCATION FORUM, 1970, 24 (7), 32-34.

Brown, Byron, and Finch, John, "A Self-Motivating Technique for the Teaching of Economics in the Small State College and/or Community College Environment." COMMUNITY COLLEGE SOCIAL SCIENCE QUARTERLY. February, 1973. Pp. 40-44.

Clemence, Richard V., "Introductory Economics in the Junior College," JUNIOR COLLEGE JOURNAL. Vol. XVI, No. 16, March, 1946.

SUMMARIES OF SELECTED STUDIES

Alvey, George C.; Cheetham, Charles; Gagion, Marilyn M.; Iziengbeaya, Daniel I.; Kramer, Karen; Ryan, Robert M.; and Sapre, P. M.

Economic Education in America: A Plan for Increased Effectiveness.

New York: NYU Business Education Program, 1978. 42pp.

One part of this paper includes a report of the testing of students in two community colleges in New Jersey. The authors selected those majoring in Engineering Technology because the engineering programs did not require the study of economics. They wanted "to determine the level of economic understanding of a group that had not been previously exposed to economic education." (Page 15.) They developed a 40-item multiple choice test to measure student ability to understand and evaluate events reported in the daily news media. The items were submitted to a panel of three economists for content validation.

Multiple regression analysis was used to evaluate the effects of several variables on test scores. These variables were student gender, age, education of parents, family income, previous economic education, and semester in school. The following results were obtained:

- Females achieved higher scores than males.
- Older students did better than younger students.
- Students whose parents were college graduates did not do as well as those whose parents did not graduate.
- Students with a low family income did better than those with high family incomes.
- Students who had been exposed to economics instruction achieved higher scores. (This was the most significant variable.)
- First-semester students did better than fourth-semester students.

The results from each college were tabulated and reported separately, and then combined for an overall outcome. The results were similar for the groups from both colleges. Scores ranged from a low of 25 to a high of 87.5 (with 100 being a perfect score). The mean for all students (n = 163) was 60.82. The researchers concluded that most students "could not be expected to correctly interpret more than about sixty percent of the economic concepts reported in the newspapers and media." (Page 17.) Item analyses showed that the students did well on some items (such as economic systems, foreign trade, and the market) but badly on others (such as government programs, business organizations, and government regulations).

Baer, John W.

Level of Economic Theory in Maryland Community Colleges.

Arnold, Maryland: Anne Arundel Community College, 1979. 11pp. (Unpublished paper.)

Baer estimated that at least 50 percent of the college students taking economics in Maryland take their principles course in community colleges. He reports on a study made in the fall of 1975 to determine what level of economic theory community college instructors expect their students to learn and what level of cognitive skills they want them to acquire. The study also sought information on the instructors' academic backgrounds and teaching experiences.

To ascertain the level of economic theory instructors considered essential, the researcher used Fred Thompson's Instructional Objectives for Junior College Courses in Economics (Washington, D.C.: ERIC Document Reproduction Service, 1969) and the Educational Technology Center's Behavioral Hierarchy Charts: Economic Analysis Course (Washington, D.C.: Sterling Institute, 1968). Each of the 53 selected objectives was classified as to level of cognitive skill in accordance with Bloom's taxonomy. (See Benjamin S. Bloom, Taxonomy of Educational Objectives. New York: Longmans, Green, 1956).

A questionnaire was sent to the 41 instructors teaching principles of economics in Maryland's 16 state community colleges in the fall of 1975. Replies were received from 26 instructors. In addition to the section on objectives, the questionnaire asked about teaching experience, academic training, teaching practices, and textbooks used.

It was found that 15 percent of the respondents had Ph.D. degrees in economics; 54 percent had masters degrees in economics; 15 percent held MBA degrees; and 15 percent had no degrees in economics or business. A majority (62 percent) belonged to the American Economic Association. Most (77 percent) used the lecture method. The rest used the discussion method. Five different textbooks were being used.

Most of the students were business transfer or business vocational students. None of the instructors had a list of specific instructional objectives, many saying that their objectives could be found in the textbooks. Only two of the 26 instructors expected their students to learn all of the objectives considered essential by Thompson and the Sterling Institute, but a majority (58 percent) wanted their students to learn 80 percent or more of the objectives.

Baer concluded that "about one-third of the instructors do not expect their students to learn many of the essential objectives in microeconomics and international economics." (PP.6-7.) Few expected their students to learn any of the 'Advanced Theory objectives." He found that some instructors were avoiding advanced theory in favor of "the simpler concepts of radical and/or institutional economics." (Page 7.) The majority of the instructors did expect their students to acquire some training on all of the cognitive skills in Bloom's taxonomy (knowledge, comprehension, application, synthesis, and evaluation). As might be expected, there was a high correlation between the number of objectives chosen from the "Advanced Theory list" and the objective of preparing students for advanced business and economics courses. There was also a significant correlation between the number of objectives chosen from the "Advanced Theory and Thompson/Sterling lists", and the instructors' years of experience in teaching at four-year colleges and the number of supplementary readings being assigned.

Baer noted that there is "a wide variation in the level of economic theory taught at Maryland state community colleges." (Page 9.) The majority of instructors were teaching most of the essential objectives, but "a large minority" did not expect their students to learn many of the essential objectives in microeconomics and in international economics. Instructors from business departments who had the largest number of sections were most likely to expect students to learn a smaller number of objectives. These instructors expect their students to learn more about public policy issues, however. There was no significant relationship between the number of objectives the instructor expected students to learn and the textbook being used. (Five different textbooks were in use.)

Baer recommended that more data be collected on students in introductory courses, that economists from varying philosophical schools (institutional, radical,and Austrian, for example) prepare lists of "essential" objectives, that objectives be placed in hierarchies to indicate logical and pedagogical relationships among them, and that research be done to see if there is a relationship between the number of objectives and performance on the Test of Understanding in College Economics (TUCE). He also implied the need to determine how class size and departmental location affect economic education.

Barr, Saul Z., and Carr, Glenna D.

"Influences of Teaching Methods and Personality on Junior College Students in Macroeconomic Principles."

The Journal of Economic Education. Vol. 10, No. 2. Spring 1979, Pp. 62-65.

Also see Barr's Ed.D. study "Influence of Teaching Methods and Personality on Understanding College Economics," Gainesville: The University of Florida, 1978,and "Personality as a Factor in Learning College Macroeconomics: Using the Myers-Briggs Type Indicator," by Glenna D. Carr and Saul Z. Barr, to be published in the Journal of Educational Psychology.

This study was designed to find out if the teaching of macroeconomics through current events and small-group discussion is superior to the conventional lecture approach. The experiment took place in three junior colleges in Georgia in the fall of 1977. Students were randomly assigned to experimental and control sections. The three control classes heard lectures and read a standard principles textbook. The experimental groups heard lectures for about half the time, but used current events articles as bases for small-group and all-class discussions the rest of the time. An observer was placed in each classroom to record the number of minutes spent on each activity.

The 168 students involved in the study took Part I of the Test of Understanding of College Economics (TUCE). This was used on a pre-test, post-test basis (Forms A and B). The Myers-Briggs Type Indicator (MBTI) was used to establish the personality dimensions of students and instructors. The four personality dimensions covered in this test are extraversion-introversion, judging-perceptive, sensing-intuitive, and thinking-feeling. (See I.B.Myers, The Myers-Briggs Type Indicator. Princeton, New Jersey: Educational Testing Service, 1962.) A comparison of the groups in terms of such variables as age, sex, SAT scores, high school and college grade point averages, number of courses taken previously, interest in the course, and whether the course was a requirement or an elective revealed that there was no significant difference between the control and experimental students. Mean pre-test scores on the TUCE did not differ significantly.

All groups were exposed to the same economics content during the ten-week period of the study. In addition to noting gain scores (difference between pre-test and post-test scores), the researchers designed a "residual gain score." This was done by making a prediction based on college grade point average and TUCE pre-test score for each student. The predicted post-TUCE score was then subtracted from the actual score to determine the student's "residual gain score." Students in the experimental groups did

significantly better (.01 level), both in terms of simple gain scores and "residual gain scores."

Students in the control groups were compared with those in the experimental groups in terms of personality types. The students in the experimental sections had higher "residual gain scores" than students with the same personality types in the control groups. The MBTI personality dimensions were not important factors in the learning of economics. That is, there was no significant relationship between personality type and the learning of economics in either the control or experimental group. The experimental method appeared to be superior regardless of the student's personality type.

Finally, the personality dimensions of the instructors were compared with those of the students to see if having the same MBTI dimension as the instructor affected "residual gain scores." Having the same personality dimension as the instructor did not affect the student's post-test or residual gain scores. Thus, the instructor's personality dimension did not influence student learning regardless of the teaching method used.

The authors concluded that the use of discussions and current events in introductory macro classes "seems to be more effective" with all types of students.

Becker, William E. and Salemi, Michael K.

The Learning and Cost Effectiveness of AVT Supplemented Instruction: Specification and Misspecification of Learning Models.*

Minneapolis: University of Minnesota, 1976.

(Paper presented at the Midwest Economics Association Meeting, St. Louis, Missouri, April, 1976.) 25pp.

Becker and Salemi examined a self-paced audio-visual tutorial (AVT) approach in terms of its impact on quantity, cost and efficiency of student learning in a community college economic principles course. The following questions were raised:

> Can a learning model be specified, on the basis of formal theoretical and statistical grounds, within which learning can be examined in control-experimental groups?
>
> Is there a difference in the quantity of learning as measured by the TUCE between control and experimental groups?
>
> What influence does student classroom and study time have on learning?
>
> Is the learning produced in the experimental sections less costly to students than that produced in the control groups?

Six community colleges in two states were used. At each college the same instructor taught both a control group using his or her regular teaching method and an experimental group using David A. Martin's AVT package, Introductory Economic Theory. They found no difference between control and experimental groups in terms of gain scores (post TUCE minus pre-TUCE). Further student study time had little effect, and there was actually a negative correlation between pre-TUCE scores and student learning. There was no difference in the average cost of learning per TUCE point between the two groups.

One of the simple linear learning models used was as follows:

$$L = f\left[A, T, S, u\right]$$

L is Learning; A is Aptitude; T is Time input; S is Situation (physical learning plant); and u is Random error. The model says that learning is dependent (except for the error component) on the

---

* Also see their article in The Journal of Economic Education, Vol. 8, No. 2, Spring 1977, pp. 77-92.

student's aptitude (A is a measure of human capital), time spent in class and in study, and the environment or situation in which the learning takes place. Such variables as age and sex were not included on the ground that their contribution would be reflected in A.

Although the experimental treatment had no differential effect on learning, there were significant differences in learning across schools. The negative coefficient on pre-TUCE casts doubt on pre-TUCE as a measure of aptitude. Other researchers may want to pay particular attention to Section III of the paper, "Non Linear Learning Models and Correction for Simultaneous Equations Bias." Here Becker and Salemi study the implications of fitting the learning model set forth above, and discuss pre-TUCE as an aptitude proxy. They suggest that a simultaneous equation bias may account for the highly significant negative pre-TUCE coefficient estimates. The use of an instrumental variable procedure, such as two stage least squares (TSLS) is offered as an appropriate remedy. Now the TSLS pre-TUCE coefficient estimate becomes positive, and this is consistent with the assumption that pre-TUCE is a proxy for aptitude. Nevertheless, they still find no "discernible difference" between control and experimental group learning; and student time remains insignificant.

Next, they take up the gap closing model. The "gap" is the difference between a perfect score and the student's pre-test score. It is the distance the student must close to achieve a perfect score on the post-test. The student's pre-test score is then deducted from his or her post-test score, and this amount is divided by the gap. The result is the percentage of the gap actually closed by the student. For example, if a student needs to gain 10 points to close the gap between his pre-test score and a perfect score, and he actually gains only 6 points, then his gap-closing score is 60%. (For an analysis of the gap closing model see Frank W. Gery, "Is There a Ceiling Effect to the Test of Understanding in College Economics?" in Arthur L. Welsh, Ed., Research Papers in Economic Education. New York: Joint Council on Economic Education, 1972, pp. 35-49.) With this measure of learning -- the percentage of the gap closed -- there is a positive relationship between pre-TUCE and student gain. However, Becker and Salemi assert that the gap closing model is misspecified in at least one way. The model predicts that the change score will be positive for all students, but this fails to account for guessing. Thus, a student might score higher on the pre-TUCE than on the post-TUCE.* Becker and Salemi dealt with this by dropping those cases for which the change scores were negative. The coefficient of pre-TUCE was significantly positive when estimated by TSLS. They urge that "future research ... strive to collect data which will give information on the aptitude of students in economics to use either as a replacement for pre-TUCE or as an instrument for it." (P. 17.)

---

* Several of my own research projects support Becker and Salemi here. -- George Dawson.

There was little difference between control and experimental groups in terms of learning, and student study time was similar for both. Thus, the added cost of the Martin material might not be justified. However, the opportunity cost of student time differed because the money value of that time (as measured by the wage rates earned by working students) varied. The student cost of learning was less for the experimental group, and this offset all additional fixed costs of the Martin package. The average weekly student cost of learning per TUCE point, however, was not statistically different.

In conclusion, in both the linear and non-linear model specifications, Martin's AVT package was not found to be superior in increasing economic learning, and student classroom and study time did not prove to be a significant input. The pre-TUCE effect on learning was positive when properly estimated by TSLS. The authors do not find the added cost of Martin's material to be justified. They assert that their study provides "a sound statistical modeling procedure which previously has not been attempted in economic education." (P. 21.)

(See the Walstad study, described later, which is closely related to this one.)

Bellico, Russell

"Prediction of Undergraduate Achievement in Economics."

The Journal of Economic Education. Vol. 4, No. 1. Fall 1972, Pp. 54-55.

In this study, Bellico was attempting to identify variables associated with academic success in the economics curriculum at the University of Massachusetts. He developed a multiple regression equation to predict the probable achievement of students planning to major in economics.

Attendance at a community college was one of the 18 variables selected from the academic records of 92 B.A. candidates majoring in economics at the University of Massachusetts. The criterion variable was the grade point average of advanced courses in economics taken during the junior and senior years.

Correlation coefficients were calculated to identify the relationship between the independent variables and the dependent variable. The coefficient for community college attendance was -.06736. Relatively high R's were obtained for freshman-sophomore GPA (.6727), social science GPA (.52810), grade average in elementary economics (.52156), and college math GPA (.45736).

In developing a prediction equation, however, Bellico concluded that a regression equation with two variables was most useful. The prediction equation with the best combination of two variables included community college attendance and freshman-sophomore GPA. The addition to R^2 provided by the community college variable was .1148; and that provided by freshman-sophomore GPA was 4525.

Chesney, Michael T.

A Critical Analysis of Economics Programs in Texas Junior Colleges.

Ph.D. thesis. Austin: The University of Texas, 1979.

Chesney studied institutional policies, course content, teacher preparation, textbooks used, numbers of students enrolled in economics courses, and the objectives and attitudes of course instructors in Texas junior colleges. His research was conducted during the 1977-78 academic year. Fifty of the 63 public and independent junior colleges in Texas responded to his questionnaire. His findings were as follows:

- Economics was required of students majoring in business, social sciences, mid-management, and engineering.
- The course content emphasized business-related structures and practices and "utilitarian factors" as opposed to the economic literacy approach.
- The majority of instructors held masters' degrees in economics or business. Only four held a doctorate.
- Fewer than five percent of all students were enrolled in economics courses.
- The stated objectives of the courses indicated a concern for both the utilitarian approach and the economic literacy approach.
- The faculty members wanted more emphasis placed on literacy.

Chesney also identified a number of problems and needs. These were as follows:

- The students' mathematics backgrounds were inadequate.
- Better counseling was needed to recommend economics courses to students, especially to minority students.
- There was difficulty in offering a course equivalent to the economics course in senior colleges.
- Teaching loads were thought to be too large, and funds were needed for equipment.

The author recommended the following:

- Development of more effective means of popularizing economics.
- Maintaining closer contact with senior colleges and offering equivalent courses.

- Require all students to take two semesters of economics.

- Encourage more use of field trips, case studies, guest speakers, games, simulations, and computer-assisted instruction.

- Develop a course in free enterprise for the junior colleges.

- Make economics more interesting for the students and show them that it is "essential for their economic survival."

Dawson, George G.

Economics in Two-Year Colleges: A Nation-Wide Survey.

New York: NYU Center for Economic Education, 1969. 19pp. Mimeo.
ERIC Document No. ED 030 435.
Also see Dawson"s "Economic Education in Junior Colleges: Economics Courses Offered and Required," The Journal of Economic Education. Vol. 2, No. 1, Fall 1970, pp. 14-21.

A questionnaire was sent to every accredited two-year college in the United States in 1969, asking for information on their economics courses and the backgrounds of their instructors. Replies were received from 293 schools, or 32 percent of those listed in the 1968 Directory of American Junior Colleges. Although he could not claim that this sample truly represented all junior colleges, Dawson noted that it appeared to reflect the total population in several respects. For example, 71 percent of all junior colleges at that time were public, and 73 percent of the respondents were public institutions. Twelve percent of the sample represented non-public colleges that had no church affiliation, and this was the same proportion of such colleges found in the total population. Church-related schools made up 17 percent of the total population and 15 percent of the sample. Replies came from 44 states, the District of Columbia, and the Canal Zone. Total junior college enrollment in the unrepresented states accounted for less than one percent of all students enrolled in American junior colleges. Dawson also compared his results for particular states with studies that had been made in those states and found his sample data tended to reflect the data obtained from the state-wide studies.

Every respondent offered at least one economics course. The number of courses ranged from one to ten, with three as the mean. The principles course was the most common offering -- every school but one offering this course. Other courses offered by more than ten percent of the respondents were economic geography, economic history of the United States, problems of economics, business or corporate finance, general economics, and money and banking. The "general economics" course was offered in addition to the regular principles course by 12 percent of the sample. Although it appeared under many different titles (such as "Economics for Citizens") it was usually a three credit course for non-majors and was not usually considered to be transferable to a four-year college. Those offering several courses tended to reflect the pattern found in four-year colleges, but some offered such specialized courses as "Economic Development and the Texas Gulf Coast."

About 74 percent of the respondents required economics of some students, usually those majoring in business or closely related fields. About 89 percent specifically required that business majors

take economics, and 16 percent required it of social science majors. A few required those majoring in pre-law, engineering, data processing, home economics, agriculture, and education to study economics.

The total number of students taking at least one economics course was nearly 99,000, or 14 percent of the total enrollment in the 293 colleges responding. In schools that did not require economics of any student, however, only about eight percent took an economics course. Data on some colleges that did not respond were available from state-wide studies. Adding this information to his own survey, Dawson estimated that at least 157,000 junior college students were taking economics courses in 1968-69. Where economics was required of some students, the principles course was usually the one course the students had to take. A few required Problems of Economics, General Economics (the terminal course), economic history, finance, consumer economics, money and banking, economic development, or government and business.

The economics courses were located in a department or division of social science in 50 percent of the colleges responding, and in a business department in 34 percent. (In a few cases the business department was within a social science division.) In five percent of the colleges economics was jointly sponsored by the social science and business departments. Only two percent had a separate economics department. In a very few instances, economics was taught in a department of general studies, the home economics department, or a department of history or political science.

There were 703 teachers of economics in the 293 responding colleges, 43 percent of whom were teaching economics exclusively and full-time. The others were either part-time instructors or were teaching other courses as well. Only three percent of the 703 had doctorates in economics, while 46 percent had masters degrees, and 13 percent had bachelors degrees in economics. Thus, 38 percent of the economics instructors had no economics degrees at all, although some minored in economics or had degrees in such related fields as business administration.

Finally, the three types of colleges (public, independent, and church-related) were compared. The independents reported a greater percentage of students taking economics (31 percent), probably because many of them stressed business programs. The church-related schools were less likely to require economics of any students, had fewer full-time economics teachers, and offered fewer economics courses. For the most part, however, the three types of colleges followed the same pattern as the total sample population.

Dawson, George G.

Economics in New York's Junior Colleges.

New York: NYU Center for Economic Education, 1969. 7pp. Mimeo.

After completing his nation-wide survey, Dawson decided to make a separate study of two-year colleges in New York State. About half of New York's junior colleges had returned the questionnaire in the nation-wide study. The same questionnaire was then sent to New York colleges that had not replied. This resulted in a total of 45 responses. There were 64 colleges listed in the 1968 Directory of the American Association of Junior Colleges.

Three of the 45 colleges said they offered no economics courses. The report, then, was based upon the 42 responding colleges that did offer at least one course. The number of courses offered ranged from one to eight, with three as the mean. The nation-wide mean was also three courses. Defining economics very broadly to include statistics and business subjects, Dawson found 18 different courses being offered in the New York colleges. Each of the 42 colleges offered a principles of economics course, and in many cases this was their only economics course. Money and banking was offered by 17 percent, problems of economics by 14 percent, economic geography by 14 percent, and business or corporate finance by 12 percent. The terminal course ("General Economics") was offered by only seven percent, as compared with 12 percent for the national sample. The overall pattern was not much different from that of the national sample, however. (New York colleges were more likely to offer money and banking and labor economics, however.)

About 76 percent of the New York colleges required economics of at least some students, a figure very close to the national sample's 74 percent. Those studying business or related subjects were most apt to be required to take it. Over 80 percent specifically required the principles course.

Total enrollment in the 42 colleges was 80,830, with the range from 190 to 10,000, and the mean being about 2,000. About 19 percent of all students were taking economics, as compared with 14 percent for the national sample. In schools requiring economics of some students, about 20 percent of the total student body was taking this subject. (The national figure was 15 percent.) Where economics was not required of any student, about 12 percent took it anyway. This was higher than the eight percent in the national sample. It was conservatively estimated that over 15,000 students were taking economics in New York's two-year colleges.

Economics was the responsibility of the social science department in 69 percent of the 42 colleges, and of the business department in 18 percent. (The national pattern was 50 percent in social science departments and 34 percent in business departments.)

Half the New York instructors were teaching economics on a fulltime basis, as compared with 43 percent nation-wide. Ten of the schools had no fulltime economics teacher, however, and the mean number of fulltime economics instructors was only one.

Eight percent of the 119 instructors reported by the 42 colleges held doctorates in economics (the national figure was three percent); forty percent held masters degrees (46 percent nation-wide); and 19 percent held bachelor's degrees in economics (13 percent nation-wide). Thirty-three percent had no economics degrees, as compared with the nationwide figure of 38 percent. Thus, in terms of formal preparation in economics, New York's instructors were somewhat better prepared.

New York followed the national pattern in terms of the number of courses offered, emphasis upon the principles course, and the extent to which economics is required. It appeared that a greater percentage of students were studying economics, however, even when the course was not specifically required, and that the formal preparation of the instructors was somewhat stronger than that of the national sample.

Dawson, George G.

The Teaching of Economics in Selected Junior Colleges of Metropolitan New York.

New York: New York City Council on Economic Education, 1970. 5pp.

During the 1969-70 academic year, Dawson administered the Test of Economic Understanding, Form A, to students in a junior college in New York City and students in a two-year college on Long Island. Although 377 students took the pre-test at the beginning of their one-semester introductory economics course, only 248 took both the pre- and post-tests. The four instructors involved in this study filled out a questionnaire indicating their economics backgrounds and teaching experience. At the end of the course the instructors completed another questionnaire asking them to indicate the textbooks they used, what assignments they gave, and what the major content emphasis had been.

The students who took the pre-test but not the post-test achieved a mean score of 25.050 on the pre-test. Students who took both tests achieved a mean score of 25.032 on the pre-test. In spite of the fact that these scores were practically identical, Dawson excluded the drop-outs from the study. (The drop-out rate was 34 percent in both colleges.)

For the group as a whole, the post-test mean was 28.359, with an average gain score of 3.327 raw score points. About 22 percent got lower scores on the post-test than on the pre-test, however, and another seven percent achieved the same score on both tests. Thus, it appears that about 29 percent gained nothing from the course, at least as the TEU measures economic learning. It is possible, of course, that the TEU was not an appropriate instrument; although it had been used widely to measure student progress in college introductory principles of economics courses. (It might be noted, also, that student unrest was becoming a serious problem on campuses at the time the post-test was being administered. Many students might have felt that the test would not affect their course grades, and perhaps some did not care. There was a decidedly negative feeling toward tests and other formal requirements on college campuses at this time.)

The junior college students revealed a low level of achievement when compared with students in a number of New York four-year colleges. Dawson had administered the TEU to over 1,200 students in several four-year colleges in 1965-66.* The lowest pre-test score achieved by students in any of these colleges was 29.85. This was

* See George Dawson and Irving Bernstein, The Effectiveness of Introductory Economics Courses in High School and Colleges. New York: NYU Center for Economic Education, 1967.

the mean raw score achieved by 536 students in one college before they took the introductory course. Thus, the junior college students in this sample, after taking an economics course, achieved a mean raw score below that of four-year college students who had not yet had a college economics course. Indeed, the junior college sample did not do as well on the post-test as a group of 1,834 high school seniors who had taken a high school economics course. It would be a mistake to infer from this that all junior college students do poorly in economics. In fact, a number of students did achieve very respectable gain scores -- scores comparable to those achieved by students in some of New York's most prestigious four-year colleges. The poor showing of the group as a whole may be accounted for by the fact that these colleges were accepting students of low academic ability, while the four-year colleges were still being quite selective in their admissions.

Several variables were taken into account in analyzing the results of this study. The college attended was not significant. Less than one point separated the mean scores of both groups on the pre-test and on the post-test. The New York City students achieved an average gain of 3.481 while the Long Island students gained 3.196 points, but this difference was not statistically significant.

Students who had taken economics in high school did not differ significantly from those who had not. (In the study of the four-year college students it was found that students who had taken high school economics achieved higher scores on both the pre-test and post-test but that the gain scores were higher for students who had not had high school economics.)

The student's major field was not significant. About half were majoring in business while the rest were scattered over many subject areas. The business students achieved lower scores than all other students on both the pre-test and post-test, and achieved a lower gain score as well. The differences were not statistically significant, however.

The student's gender was not important. Although many studies made in four-year colleges show that females do not learn as much economics as males, the females actually did better in this case. The gain score of the females was 3.727 raw score points, as compared with 3.178 for males. The difference was not significant. (A much larger percentage of males were in their first semester of college, and this did prove to be a significant factor.)

The preparation and experience of the instructor were also considered. Upon examining the untreated data, it appeared that there was a relationship between student gain scores and the teachers' preparation in economics and years of teaching experience. Instructors with the largest number of economics courses on their transcripts and the greatest number of years of experience obtained the best results. The instructor with the fewest credits in economics

and the least amount of teaching experience got the poorest results. His students achieved the smallest mean gain, and the percentage of those who regressed was highest in his class. Nevertheless, the differences between teachers were not statistically significant.

Two different textbooks were being used (McConnell and Samuelson), but the text made no significant difference in gain scores.

Three variables did prove to be significant -- academic ability as measured by grade point averages, pre-test performance, and the extent of college experience. Scores on the pre-test were related to cumulative grade point average well beyond the .01 level of confidence, but grade point average was even more significant in explaining the post-test performance. Pre-test performance was significant in explaining gains, well beyond the .01 level. The "extent of college experience" refers to whether the student was in the first semester of college or not. The student's age was not important (only 17 percent deviated from the mean age of 19 by more than one year), but it was clear that the student who survived one or more semesters of college had a distinct advantage over the incoming student. Of course, these results are not surprising and are in accord with a number of other studies made at the four-year college level.

An item analysis was made to ascertain which questions were missed most often. Improvement was shown in 39 of the 50 items (78 percent of the questions). There was no change in one item between pre-test and post-test, and the group actually regressed on 10 of the items. (A one-semester course probably does not cover all subjects found in the TEU.) On the post-test, the majority of students missed items dealing with international economics (such as the balance of payments and the effects of tariffs), banking, monetary policy, government's farm policy, the interpretation of charts (such as GNP and CPI graphs), productivity and wages, investment and the business cycle, and business concentration.

Decker, Robert L.

"The Demand for Economics Ph.D.'s in Community Colleges."

The Journal of Economic Education. Vol. 6, No. 2. Spring 1975. Pp. 127-128.

Decker sent questionnaires to 200 randomly selected two-year colleges in the United States "to determine the validity of various hypothetical criticisms of the use of Ph.D.'s in community colleges and the attractiveness of several possible new programs as relevant training for teachers in such colleges." (P. 127.) He received 128 replies.

The respondents were asked to rate five hypothetical criticisms of the use of Ph.D.'s in community colleges. The most important reaction was they they have "no commitment and soon leave." Second in importance was their lack of teaching skills. They were also seen as being "too narrowly trained." A few found their salary requirements to be too high. A fifth factor -- "salaries too high compared to present faculty" -- was not considered important.

The researcher proposed four training programs -- a Doctor of Arts with six economics specialties; a Ph.D. with five specialties, along with some research training; a Ph.D. in social science; and an M.A. in economics. The community college administrators considered the Ph.D. with five specialties to be most relevant. The Doctor of Arts, the M.A., and the Ph.D. in social sciences came next in that order.

Decker also found that about 80 percent of the respondents did not have an economics department, and that 90 percent of the new faculty members hired had earned masters degrees as their highest degrees.

Dopp, John A.

A Survey of the Content and Structure of Principles of Economics Courses.

Doctor of Arts study. Bethleham, Pa.: Lehigh University, 1977.

Two-year colleges were included in this study. Dopp used a table of random numbers to select a sample of 204 two-year schools, representing 26.4 percent of all two-year colleges in the United States. The questionnaire was returned by 62 of these, a return of 30.4 percent. All were public colleges.

Dopp found that 20 percent offered two types of principles courses, one for those majoring in business or economics and another for non-majors. (The same percentage response was received from the four-year colleges.) Economics was taught by the business division in 59 percent of the two-year colleges, and in an Arts and Sciences division in 41 percent. (These figures were reversed for four-year schools.) Four-year schools were more apt to have separate economics departments. The two-year schools usually placed the course in a business administration department or a social science department.

Only eight percent of Dopp's sample of two-year schools offered a one-semester or one-quarter course, as opposed to 20 percent of the four-year institutions. The former were more likely to favor a macro to micro sequence -- 79 percent favoring this arrangement, as compared with 58 percent of the four-year colleges. The credit value was three hours per semester. Ninety percent of the classes in two-year colleges were of normal size (from 10 to 50 students per section), as compared with 75 percent for four-year colleges.

As for teacher background, 15 percent of the junior college teachers held doctorates, 11 percent were "ABDs," and 72 percent held masters degrees. On the other hand, 72 percent of the four-year teachers held doctorates, 13 percent were "ABDs," and 14 percent held masters degrees. Five percent of the junior college teachers were part-time instructors, whereas only two percent of the four-year teachers were on a part-time basis.

Teachers in two-year schools were freer to select their textbooks; 65 percent reporting that they made the choice, whereas in four-year schools the choice was made by the department in 50 percent of the cases. The chalk-board was the main teaching tool in both types of schools. Although few used overhead projectors, television, computers, audio tapes, or films, the junior college teachers were somewhat more inclined to resort to these devices. Very few in either type of school used simulations, role playing, field trips, or field work. About 34 percent did report the use

of case studies or issue analysis, however. The use of personalized or programmed instruction was rare.

Only 14 percent of all respondents assigned term papers, but the junior college instructors were more inclined to do so--19 percent assigning papers as compared with only 12 percent of the two-year college teachers. The former were also far more likely to use magazines and newspapers as an integral part of the course--37 percent doing so, while only 18 percent of the four-year instructors used these publications. There was not much difference between types of schools in the use of objective tests (73 percent of all respondents used them) or essay questions, but the two-year schools more often gave weekly quizzes (15 percent as compared with six percent of the four-year colleges).

The two-year colleges were more likely to have written course objectives. Both groups of respondents agreed that an important objective is to "Prepare the student to become a better informed citizen through an understanding of our economy and its institutions." The goal of preparing the student for a professional career was considered unimportant by 93 percent. Developing the students' skills in analytical thinking was also seen as important, with the four-year instructors placing somewhat more emphasis on this. On the other hand, the two-year teachers were somewhat more strongly in favor of the "better informed citizen" objective.

Both groups reported the use of faculty performance or course evaluation questionnaires, with no difference between the groups. The junior college teachers were more apt to suggest innovative teaching methods, however, such as self-paced instruction, peer tutoring, oral reports, and having students write editorials on economic issues.

Dopp attempted to ascertain the extent to which particular topics and concepts were stressed. The respondents were asked to check "Not Covered," "Briefly Mentioned," "Adequately Covered," or "Extensively Covered" to each listed topic. The two-year teachers reportedly stressed some subjects more strongly than did their four-year colleagues. These included capitalism, current events, business organization, GNP measurement, growth of government spending, public debt, price indexes, the accelerator, stagflation, business cycles, deposit creation, gold, the Great Depression, monopolistic competition, oligopoly, monopoly, anti-trust, resource pricing, agriculture, collective bargaining, human capital, urban economics, and OPEC. The four-year colleges reportedly placed more emphasis upon such topics as Arc elasticity and point elasticity. These results appear to be based upon rather subjective judgments.

Finally, the four-year schools emphasized lectures as the dominant method to a greater extent than did the two-year colleges. The latter were more favorably inclined toward lecture-discussion than were the former. Thirty-two percent of all respondents used lectures as the dominant method, and 60 percent used lecture-discussion.

Friedlander, Jack

Science Education in Two-Year Colleges: Economics.

Los Angeles: Center for the Study of Community Colleges and ERIC Clearinghouse for Junior Colleges, University of California, 1980, 70pp.

This lengthy monograph is part of a series of twelve dealing with the sciences in two-year colleges. The findings are based upon a representative national sample of 175 two-year colleges. Catalogs and class schedules for the 1977-78 academic year were used for data on curriculum. Information on teaching practices was obtained from questionnaires returned by a sample of 69 economics instructors. Friedlander also examined a number of studies made by others dealing with economics education in community and junior colleges.

Six categories of economics courses were established on the basis of the college offerings. These were as follows:

Introductory/General Economics: Non-technical and non-theoretical economics survey courses.

Principles of Economics: Conventional macro- and micro-economics courses similar to those taught in four-year colleges.

Business-Related Economics: Money and Banking, Labor Economics, Business Economics, Real Estate Economics, and others applying economic principles to business situations.

Technology-Related Economics: Courses applying economic theory to such industries as agriculture, engineering, and transportation.

American Economics and History: Courses stressing the institutional and economic conditions influencing economic growth.

Special Topics: Courses dealing with specific countries, regions, or groups (women; Blacks); economic development; comparative systems; or contemporary issues.

The Principles course was most common, with 93 percent of the 175 colleges offering this subject. The "Introductory/General" course was offered by 33 percent; "Business-Related" courses by 34 percent; "Technology-Related" by 22 percent; "American" by 16 percent; and "Special Topics" by nine percent. Nearly 99 percent of all colleges offered at least one economics course. As might be

expected, large colleges (7,500 students or more) were more likely to offer courses in any of these areas (except "Technology-Related" courses) than were medium (1,500 to 7,499 students) and small (less than 1,500 students) colleges. Public colleges offered more economics courses than private colleges.

Most colleges used the macro to micro sequence in their Principles courses, and over 43 percent had some sort or prerequisite for entry into the Principles course. Discrepancies were found between the number of courses listed in the catalogs and those listed in the class schedules. About 95 percent of the Principles courses listed in catalogs were also found in the class schedules, but the degree of correspondence dropped to about 79 percent for General courses, 71 percent for Technology-Related courses, 60 percent for American Economics and History, 56 percent for Business-Related offerings, and only 36 percent for Special Topics. This suggests the possibility that "either the catalogs are hopelessly out-of-date or that student demand has diminished considerably." (Page 25 of manuscript.) Friedlander notes that class schedules rather than catalogs should be used in determining a college's actual offerings.

Analysis of the questionnaire responses from instructors indicated that about 82 percent of the students complete their economics courses. This was slightly better than the record for anthropology classes, and a bit lower than the retention rate for psychology and sociology classes. Economics teachers were less likely to depart from the lecture-discussion mode than were instructors in anthropology, psychology and sociology. Lectures by the instructor took up over 63 percent of the class time in economics courses, but less than 50 percent of the time in the other three social sciences. Except for the widespread use of maps, charts, illustrations, and displays, economics teachers were much less apt to use such instructional media as films, filmstrips, slides, overhead transparencies, videotapes, and audio recordings than their colleagues in anthropology, psychology and sociology. On the other hand, the economists were more likely to use handouts, newspapers, journals, magazines, and workbooks along with the regular textbook.

About 84 percent of the economics insturctors considered it "very important" that their students learn the concepts of the discipline, but only about 30 percent thought it very important to relate the concepts to the student's own values. The teachers in the other social sciences were more inclined to want students to relate the concepts of their disciplines to their own values.

The multiple response type of test was the evaluation instrument most frequently used by the economists. Nearly 48 percent also used essay questions, however. Only about 10 percent used papers written outside of class as part of the student's evaluation. The economics teachers were less likely to use such out-of-class activities as field trips, TV programs, outside lectures, community

projects, and films than their colleagues in the other social science disciplines.

In regard to formal training in economics, about 10 percent of the instructors returning the questionnaire held doctoral degrees, and about 78 percent held master's degrees. Nearly 70 percent were employed on a full-time basis, and the majority had had over three years of teaching experience. This implies that things have improved since 1969, when Dawson found that only three percent held doctoral degrees, that 46 percent had master's degrees as their highest degrees in economics, and that only 43 percent were teaching economics on a full-time basis. About 47 percent of the instructors had "total say" in selecting the course textbooks, and over 70 percent were "well satisfied" with the extent to which they influenced the selection of instructional materials. When asked what changes were needed to make their courses more effective, the vast majority (62.3 percent) said "Students Better Prepared to Handle Course Requirements." (Page 54 of manuscript.) Other changes that received substantial support (by about a third of the respondents) were: Smaller Class; More Media or Instructional Materials; Stricter Prerequisites; Instructor Release Time to Develop Course and/or Material; and Professional Development Opportunities for Instructors. (Page 54 of manuscript.)

Friedlander ends his report with a list of 21 things that might be done "to stimulate the interest of more students" in economics. For example, he suggests that courses be "aligned to student educational needs and interests." (Page 62 of manuscript.)

Gallo, Joseph C.; Skinner, Gordon S.; and Goettle, Richard J.

Characteristics of Economics Departments in Two Year and Four Year Institutions.

Cincinnati: University of Cincinnati, 1974. 8pp. Mimeographed.

_____, The Graduate Preparation of the College Professor of Economics.

Cincinnati: University of Cincinnati, 1974. 11pp. Mimeographed.

(Also see their article "Graduate Preparation of the Undergraduate Professor" in The Journal of Economic Education, Spring 1976, pp. 128-130.)

This summary combines the findings presented in both papers by these three authors. The Economics Department of the University of Cincinnati conducted a survey of chairpersons or heads of divisions responsible for economics in two-year and four-year colleges. The sample was made up of schools with at least 600 students and which offered only an undergraduate economics major. The Cass and Birnbaum Comparative Guide to American Colleges (New York: Harper & Row, 1968) was used in selecting two nationwide groups of four-year colleges. The 61 institutions were classified as "highly selective" or "most selective" in accordance with the guide. Twenty-two of these institutions returned the questionnaire. Max Russell's The College Blue Book (New York: C.C.M. Information Corp., 1969) was used in selecting a nationwide sample of general four-year colleges. Sixty-one of the 186 surveys sent to these colleges were returned. Russell's book was also used to select a random sample of 200 two-year colleges, 61 of which returned the survey. The questionnaires covered such topics as institutional characteristics, nature of the institution's programs, instructional characteristics, and the career choices of majors.

In comparing the two-year schools with the four-year colleges, the researchers found that the former had fewer professors of economics (an average of 2.4) than any other institution. The "most selective" schools had the largest number (an average of 6.5). The "most selective" schools also had the largest number of Ph.D. economists, whereas only 8 percent of the junior college instructors had doctorates. Most of the two-year college teachers had masters degrees -- 66.6 percent -- while 16.6 percent had bachelors degrees in economics and 8 percent had no degree in economics.

Average enrollments per section were much higher in the two-year colleges than in any of the four-year institutions. The lowest enrollment per section was in the "most selective" schools with only 27 students (on the average) in each section of the principles course as compared with over 100 for the two-year schools.

In regard to teaching techniques, the two-year instructors were much more inclined to use films, slide projectors, and overheads

than any of the other types of institutions. The "most selective" colleges were least likely to use any of these devices in their economics courses. The situation was reversed in regard to the use of computers, however--only 16.4 percent of the two-year schools used computers in their economics classes as compared with 80 percent of the "most selective" four-year colleges. The two-year instructors had the heaviest teaching load, an average of 14.4 hours as compared with only 7.8 for the professors in the "most selective" colleges and 9.9 in the "highly selective." The teachers in the general four-year colleges also had heavy loads, however, with an average of 13 hours.

About 52 percent of the students in the two-year colleges planned to go on to a four-year institution, the remaining 48 percent planning to obtain jobs upon graduation. The "most selective" colleges had the highest percentage of students planning to do graduate work in economics (20 percent).

The authors concluded that these data showed "a marked need for Economics Departments to offer a wide range of courses to meet the multiple objectives of their students." For two-year colleges, they felt that more courses beyond the principles level should be offered, "especially for those students directly entering the job market."

In their second paper, the authors dealt with the effectiveness of the conventional Ph.D. program in preparing teachers of economics. As might be expected, the four-year colleges placed more emphasis upon "subject matter competence" than did the two-year schools, although the latter also considered it to be very important. Except for the "most selective" schools, the respondents were in favor of having graduate students take course work in "other sciences or social sciences" as well as economics, and felt that prospective college teachers should be competent to teach in at least three subfields of economics.

All types of schools responded negatively to the statement: "The typical graduate of conventional PH.D. program is well prepared to assume his teaching responsibilities." All agreed that some time should be devoted to giving the graduate student better teaching skills, the amount of time ranging from 13 percent to 21 percent of his or her time. There were vast differences over how to do this, however. A majority of the two-year school respondents favored giving graduate credit for training in teaching skills, and 40 percent of them thought that the development of teaching skills should be the most important part of graduate training. All schools supported "graduate apprenticeship" as a way of developing teaching skills, and all but the "most selective" believed that evidence of teaching skill was more important than evidence of research skill in hiring college teachers.

The "most selective" schools wanted graduate students to devote 27.5 percent of their time to research, while the two-year respondents saw the need for only 6.8 percent. A majority of the respondents, except for those representing the "most select" colleges, agreed that conventional Ph.D. programs put too much emphasis

upon research training. Fewer than 20 percent of the two-year institutions favored the requirement of an original research dissertation, as compared with 80 percent of the "most select" colleges. The other types of colleges favored the research dissertation, but only by a "bare majority." All schools supported the idea of substituting computer training for foreign languages in graduate programs.

All types of colleges were in favor of some graduate training in counseling techniques, for all accepted the idea that professors should "view the advising of students as an intrinsic part of the job...." Again, however, there were clear-cut differences in terms of the importance of this factor. The "most select" schools would devote only 1.7 percent of the student's time to training in counseling, while the two-year colleges urged 9.4 percent. None of the colleges believed that "grantsmanship" was important.

Skills in mathematics and statistics were important to 40 percent of the "most select" schools, but to only 22 percent of the junior college respondents. Skills in scientific writing were not considered important by any of the schools. Whereas only 40 percent of the four-year colleges believed that a graduate program for prospective college teachers should devote some time to learning about the administration, organization, and operation of colleges, 80 percent of the two-year respondents supported this element. All supported the use of comprehensive examinations in graduate schools with the strongest support coming from the "selective" schools.

The authors tentatively concluded that there would be a growing market for students trained to teach in undergraduate colleges and predicted that graduate programs would "move to incorporate more teaching experience through internship programs or other means." They feared that such programs might be regarded as "second-class," however, and that the graduates of such programs would find it more difficult to obtain jobs. They thought that special programs for two-year colleges might develop. It was concluded that the "selective" colleges prepare students for advanced graduate work, while the two-year colleges are primarily concerned with preparing students for vocational opportunities. It was asserted that most Ph.D. programs fail to meet the needs of the two -year colleges for faculty with teaching skills, "ability to guide," and the ability "to express themselves and their subjects in applied ways." One explanation for the fact that junior colleges hire people without doctorates is that those with masters degrees can "do an adequate job for much less money." (The authors were quoting a two-year college respondent.)

Garraty, David G.

An Investigation of the Effects of Consumer Economics Classes on Attitudes Toward the Marketplace.

Hampton, Virginia: Thomas Nelson Community College, 1979. 10pp. Paper presented at the Annual Meeting of The Virginia Association of Economists. (Unpublished.)

Garraty administered an attitude test to students in several sections of a Consumer Economics course at Thomas Nelson Community College in 1978. This course "applied microeconomic principles of rational decision making to consumer choices." (Page 1.) He wanted to find out if the course affected attitudes toward the marketplace, and if students in Consumer Economics differed from those taking a traditional Principles of Economics course. Lundstrom's Consumer Discontent Scale was used.* The Lundstrom test was administered on a pre and post basis. It was administered to the five instructors involved, as well as to the students. Data were also collected on student age, gender, employment status, and number of dependents (if any). Students in a Principles course were similarly tested.

Analysis of covariance was employed to test for the significance of the differential impact of Consumer Economics as opposed to Principles controlling for other variables. It was found that the Consumer Economics students increased their discontent with the marketplace, while the Principles students decreased theirs. The students seemed to be influenced by their instructors as well.

Students who were not employed were more inclined to change than those who were working. The overall mean change was 1.49, but for these students it was 11 points. This change was in the direction of greater discontent in the Consumer Economics course, but a decrease in discontent in the Principles course. Age was not a significant factor, nor was gender or dependent status.

Garraty thought that the heavy emphasis given to advertising in the Consumer Economics course might explain the rise in discontent. As for the difference between working and non-working students, he felt that perhaps the lack of "real world experience" helped to account for the tendency of the non-working group to express greater discontent. He suggests further research relating consumer discontent to measures of consumer competency.

---

*See William J. Lundstrom and Lawrence M. Lamont, "The Development of a Scale to Measure Consumer Discontent," Journal of Marketing Research, Vol. XIII, November, 1976, pp. 373-381.

Garraty, David G.

TIPS in The Small Class Setting: A Controlled Experiment.

Hampton, Virginia: Thomas Nelson Community College, 1978. 4pp. + appendices. Paper presented at the Annual Meeting of the Virginia Association of Economists, March 31, 1978.

The Teaching Information Processing System (TIPS) was developed by Professor Allen C. Kelley of Duke University to help individualize instruction in large classes. (For descriptions of this system, see Kelley's articles in the May 1968 edition of the American Economic Review, the May 1972 issue of the AER, the Spring 1973 issue of The Journal of Economic Education, and in Keith Lumsden, editor, Recent Research in Economic Education.) Garraty used TIPS in a small class setting and measured its effectiveness. His study took place during the fall quarter, 1977, in three sections of a course in principles of economics.

In using TIPS, one divides the course into instructional units lasting about one week. At the end of each unit the student takes a "survey" to determine his or her mastery of the concepts contained in the unit. The results do not affect the student's grade. The student then receives a computer print-out apprising him or her of the results of the survey, giving praise for good work, and suggesting steps to take in the case of items missed.*

Garraty's three experimental sections met jointly for lectures on Mondays and Wednesdays. On Thursdays or Fridays the sections met separately for discussions. There was also a control section that did not get the computerized surveys. The groups were pre-tested with a 22-item instrument derived from the micro portion of the Test of Understanding in College Economics (TUCE) and post-tested with a similar 22-item instrument. The post-test counted as part of the student's grade. The researcher considered gain scores (post-test minus pre-test), gap-closing scores (post-test score minus pre-test score, divided by the difference between the pre-test score and 22), and the post-test score. These were the cognitive output measures used in the regression analysis. Pre-test score was used as a proxy for student ability, and Garraty controlled for student age, gender, class, and mathematics background.

The model explained only 15 percent of the variance. Garraty thought that SCAT scores might have yielded stronger results, but these were not available for most students. He also felt that multicollinearity in the independent variable data set might explain the weak results. Actually, the control group surpassed the experimental

---

* See the summary of Thompson's study of TIPS later in this booklet for an example of a TIPS print-out.

group on all three measures (mean post-test score, mean gain score, and gap-closing score). On the other hand, the experimental group was more likely to say that the teaching method met student needs, that the objectives were clearly stated and were achieved, that they had worked harder on this course than on most other courses, and that they developed more positive feelings toward economics as a field of study. These differences were not statistically significant, however.

Garraty noted that the control group had a higher percentage of males and sophomores, and that their average age was slightly higher than that of the experimental group. On the other hand, the experimental students had a higher mean pre-test score and had "marginally higher exposure to college mathematics." (Page 3.) He concluded that students enjoy using TIPS (the vast majority favored using TIPS again). Thus, if TIPS had a negative effect on student cognitive outcomes, it also had a positive effect on "affective" outcomes. He suggested that a "more comprehensive" study be made of the use of TIPS in small class settings before firm conclusions are drawn. (There were 43 experimental students and only 18 controls in this experiment.)

Note: For another study of the use of TIPS in a junior college, see the summary of Fred Thompson's paper TIPS in a Community College Setting later in this booklet.

Joint Council on Economic Education

An Analysis of Needs for the Improvement of Instruction in Economics by Community College Faculty: A Report to the Community College Advisory Committee of the Joint Council on Economic Education.

New York: Joint Council on Economic Education, 1976. 22pp. Mimeo.

In 1976 the Joint Council's Community College Advisory Committee conducted a national survey of needs as expressed by the economics faculty in community colleges. Questionnaires were sent to about 600 community colleges, and 211 responses were received. (Over 50 of these were discarded because they were incomplete or not filled out correctly.)

Respondents were asked to rank six programs pertaining to human resources. The results were as follows:

1st Priority: Regional seminars and workshops dealing directly with methodology for teaching economics in community colleges.

2nd Priority: Further graudate-level course work in economics for community college instructors.

3rd Priority: In-service workshops, seminars, or course work designed by community college instructors.

4th Priority: A vehicle to publish research in the teaching of economics in community colleges.

5th Priority: Further graduate level course work in education for community college instructors.

6th Priority: Performance incentives for faculty, such as a national competition with cash prizes for well-developed teaching units.

Next, the respondents were asked to rank 16 suggested programs pertaining to materials and non-human resources. The results were as follows:

1st Priority: Distribute several alternative experimental approaches in syllabi form for the use of economic instructors.

2nd Priority: Distribute current materials, such as problem sets, texts dealing with specific issues, etc.

3rd Priority: Distribute pamphlets on such specific economic topics as energy, inflation, and unemployment.

4th Priority: Distribute recent research findings in effective teaching methods in community colleges.

5th Priority: Distribute current audiovisual materials in economics and/or bibliographies and reviews of audiovisual materials.

6th Priority: Provide models for the development of state economic associations which can promote cooperation between two-year and four-year schools.

7th Priority: Distribute lists of free resources.

8th Priority: Publish frequent newsletters to inform community college faculty of new developments and resources.

9th Priority: Develop and distribute nationally normed tests and evaluation instruments.

10th Priority: Distribute a bibliography of all research done in the teaching of economics.

11th Priority: Develop and distribute a teaching manual and video tapes geared to the introductory course.

12th Priority: Develop and distribute introductory economics courses, materials, syllabi, etc., geared to the community college and to specific student groups such as vocational-technical students.

13th Priority: Distribute lists of persons or Centers for Economic Education with expertise in various facets of economics instruction.

14th Priority: Develop a national test bank.

15th Priority: Distribute reviews of available texts and materials in introductory economics.

16th Priority: Develop and distribute directories of teaching resources on a regional basis.

Key, Charles M.

Evaluation of Knowledges and Understandings Acquired by Students in Collegiate Elementary Economics Apposite to a Selected Problem.*

Ed. D. study. Bloomington: Indiana University, 1969, 271 pp. University Microfilm No. 70-7991. Also see the Journal of Business Education, March 1970, and the Business Education Forum, October, 1970.

This study was conducted in eight public junior colleges in Florida. Several hypotheses were tested by use of the "t" test, analysis of variance, analysis of covariance, and Pearson's Product-Moment Correlation Coefficient. Over 700 students were involved.

First, the researcher made an inquiry concerning the nature of selected content commonly used and emphasized in elementary college economics courses. A test was then constructed and administered to 706 junior college students. Item analyses were made, and the test was refined. The revised test was used to measure the nature and extent of achievement in knowledge and understanding of macroeconomic concepts.

As might be expected, certain concepts were not mastered as well as others, but increased numbers of students understood all the subconcepts after one semester of economics instruction. Students who had had prior instruction in macroeconomics acnieved a higher level of performance than did students without prior instruction. Students at large urban public junior colleges did better than those in small urban colleges. There was a positive correlation between the extent to which instructors stressed particular concepts and the difficulty experienced by beginning students. This study suggests that the use of a test as a diagnostic instrument may help instructors decide on the amount of stress to be given to particular concepts.

---

* This summary of Key's study was derived from an abstract published in Research in Economic Education: A Review, Bibliography and Abstracts by Darrell R. Lewis and Charles C. Orvis (New York: Joint Council on Economic Education, 1971) pp. 59-60.

Kim, Paul Y.

"An Evaluation of Two-Year College Student Achievement on the Test of Understanding in Personal Economics."

The Journal of Economic Education. Vol. 7, No. 2. Spring 1976, pp. 104-110.

Kim compared the personal economic understandings of two-year college students who completed courses in Introduction to Business, Consumer Problems, and Economic Perspectives. The study was made at the General College, the two-year college within the University of Minnesota in Minneapolis. The Test of Understanding in Personal Economics, published by the Joint Council on Economic Education, was used on a pre-test, post-test basis. Student ACT composite standard scores, and scores on the Minnesota Scholastic Aptititude Test (MSAT) were considered. Of the 187 students enrolled in the three courses, 125 were included in the analysis. Those with incomplete data were dropped from consideration.

Analysis of covariance was employed to determine the effects of course, grade level, and the interaction effects of cource and grade level on student achievement as measured by the TUPE. The covariates used were the combination of (1) pre-test scores, (2) ACT composite standard scores, and (3) age. The post-test means were adjusted by the three covariates. Students taking Economic Perspectives had the highest adjusted mean (35.7), while those taking Introduction to Business had the lowest (30.4). The differences were significant at the .01 level. The adjusted mean for freshmen was not significantly higher than that of sophomores; thus, it was concluded that the significant differences among courses existed for each grade level.

Kim concluded that student achievement on the TUPE depended on the type of course taken. He thought that the Economic Perspectives course yielded better results because its content was more nearly in accord with the concepts found in the TUPE. Students in the Economic Perspectives course probably had more exposure to economic terminology and conceptual analysis than students in the Consumer Problems Course. It was also possible, however, that differences in learning activities, materials used, teaching styles, instructor background and interests, and interactions between teachers and students accounted for the differences in learning.

Koscielniak, James

The Nature of Introductory Economics Courses.

Palos Hills, Illinois: Moraine Valley Community College, 1974. 11pp.

Also see his article in Community College Social Science Quarterly, Summer-Fall, 1975, pp. 52-54 and 82.

This 1974 study compared community colleges with four-year colleges in terms of the content, mode of instruction, approach, and textbooks used in introductory economics courses. A questionnaire was sent to 108 instructors in Illinois colleges and universities. The 62 who responded represented 23 two-year schools and 39 four-year colleges.

There was no difference between two-year and four-year colleges in their coverage of national income accounts, fiscal policy, monetary policy, consumer choice, factor markets, and international economics. The community colleges did place somewhat greater emphasis upon comparative economic systems, economic problems, and the history of economic thought, however. (The significance of the difference between number of community colleges and four-year colleges covering particular topics was measured by the use of Yule's Q.)

As for mode of instruction, lectures or lecture-discussion was used by about 75 percent of all respondents. A greater percentage of four-year instructors used lecture or lecture-discussion, however, and the two-year teachers were more inclined to supplement their lectures with audiovisual aids.

The macro-micro approach was used by 94 percent of the respondents. The remaining six percent stressed the history of economic thought, issues and problems, or concepts and analysis without distinguishing between macro and micro. There was no significant difference between two-year and four-year colleges in regard to approach.

The same textbooks were found in both types of institutions, with minor differences in the popularity rankings of the five leading books.

Labinski, P.F.

"The Effectiveness of Economics Instruction in Two-Year Colleges Revisited."

The Journal of Economic Education. Vol. 9, No.2. Spring, 1978. Pp. 102-106.

Labinski challenged the notion that economics instruction in two-year colleges is inferior to that in four-year colleges. (See the Weidenaar-Dodson study and the Lewis-Wentworth-Orvis study.) He tested 143 students enrolled in Principles of Economics courses in Rochester Community College in Minnesota during the 1970-71 and 1971-72 academic years.

The dependent variables were course grade and post-test scores on the TUCE (Test of Understanding in College Economics). The independent variables included financial aid status, major field (business or non-business), whether or not the student had had college algebra and college economics, scores on the TUCE pre-test, GPA, ACT, high school rank, age, mother's education and father's education. Stepwise multiple regression analysis was employed.

Four variables proved to be significant in predicting final grades in the economics course. These were GPA, TUCE pre-test score, whether or not the student had applied for financial aid, and prior course work in economics. ACT math scores were significant when the program was run with only five variables. The coefficient of determination (R^2) was .43.

When post-TUCE scores were used as the dependent variable the same set of independent variables was found to have predictive strength, but pre-TUCE score, ACT social science score, and mother's educational background (number of years of formal education) were most significant. The R^2 for these three variables was .49. Adding the other independent variables increased the R^2 to .53.

Labinski compared mean pre-test and post-test scores on the TUCE with the scores obtained from the four-year college students in the national norming sample, and with those obtained from two-year students in two other studies. Labinski's students had a slightly higher pre-test mean than the four-year students (14.05 as compared with 13.71), but a slightly lower post-test mean (18.39 as compared with 19.24). The post-test difference (.85) was not significant at the .05 level of probability. His students achieved a much higher score than did those in the Weidenaar-Dodson study (3.64 points higher), which is reported elsewhere in this booklet.

On the other hand, the four-year students did make greater gains. The absolute improvement for that group was 5.53 points, as

compared with Labinski's 4.34. The relative improvement was higher. The four-year students achieved a mean post-test score 40.3% higher than their mean pre-test score, while Labinski's students achieved a relative improvement of 31.0%. The "gap-closing score" was also computed. (The "gap" is the difference between the pre-test score and a perfect score. To obtain the gap-closing score, one divides the gain score by the gap. This indicates the extent to which the student closed the gap between the pre-test score and a perfect score. It controls for the "ceiling effect" bias imposed by the finite number of questions -- 33 -- in the TUCE.) The gap-closing score of the four-year students was 28.6%, as compared with 22.9% for Labinski's students.

Comparing his students with those in some other junior colleges, Labinski found that they did better than those involved in the Weidenaar-Dodson study in terms of absolute improvement and gap-closing score. Their performance differed little from those tested by Lewis, Wentworth, and Orvis.

Labinski recognized the limitations of findings based on a sample of students in one college, but he felt that the following alternative hypotheses were worth investigation:

- There is great variation among two-year colleges with respect to quality of instruction. A stratified sample with respect to school size and socio-economic characteristics of students is needed.

- Junior college students are more "occupational oriented" and more concerned with practical applications. Thus, the TUCE may not measure the objectives which are common in two-year economics courses, and may discriminate against courses with junior college objectives.

- Junior college instructors may expect less of their students and thus accept poorer performance. "Students may internalize their allegedly inferior academic status and lower their own goals."

His own opinion was that the first two of these possible explanations were the most persuasive.

Labinski, P.F.

Student Attitude Towards Economics at Rochester State Junior College.

Ed.S. study. Mankato, Minnesota: Mankato State University, 1973. 57pp.

During the spring quarter of the 1972-73 academic year, Labinski tested a sample of 100 sophomores to determine the relationship between exposure to introductory economics and student attitudes. The 50 experimental students were enrolled in a Principles of Economics course or had completed the course in the previous quarter. The 50 control students had not studied economics in college.

The test developed by Labinski included questions on attitude towards economics, questions designed to determine opinions on economics issues, and questions on economics content. Information on economics background (course work), GPA, gender, age, type of high school attended, and family income was obtained. Labinski was primarily concerned with attitude towards economics as a course, the importance of understanding economics, and whether or not economics should be required. Questions to determine conservative or liberal positions on economic issues asked the student to check "strongly agree, agree, undecided, disagree, or strongly disagree" in regard to such issues as the fairness of the U.S. tax system. To test knowledge of subject matter, Labinski used 10 questions from the Test of Understanding in College Economics (TUCE), and he referred to this part of his instrument as MTUCE (for "mini-TUCE"). His findings were as follows:

- There is a significant association between interest in economics and economics background. More of the experimental students expressed high or very high interest. There was no difference, however, between those taking economics voluntarily and those required to take it. (A small number were taking it as an elective, however.)

- There was a significant association between interest in economics and GPA. Students with a "B" average or above were more inclined to be interested in economics than were "C" students.

- Males were more likely to report an interest in economics than females -- 41.0 percent of the former in the experimental group expressed high or very high interest, while only 18.2 percent of the latter indicated high or very high interest.

- Age was a factor, in that there was a significant association between interest in economics and economics background among students aged 23 or over. There was no

significant association between those aged 22 or under. Older students were more likely to express high interest in economics.

- Students who attended urban high schools were more likely to report high interest than students who attended rural high schools. (High schools in cities with a population of 2500 or more were classified as urban.)

- The chi square test did not show family income to be significantly related to interest in economics.

- Students classified as conservatives (in accordance with the Likert-type attitude scale measuring opinions on economic issues) showed more interest in economics than students considered to be moderates or liberals.

- There was no significant association between interest in economics and economics background among students who scored 5 or below on the MTUCE. (Maximum score = 10.)

- Although the experimental students were more likely to say that a general understanding of economics is important, the difference between them and the control students was not statistically significant. (Economics was seen as being important or very important by 65 percent of the total sample.)

- Members of the experimental group were more apt to feel that economics should be required, but the difference between them and the controls on this point was not statistically significant.

- There was no significant association between family income and the student's opinion on economic issues.

- There was no significant association between opinions on economic issues and the student's MTUCE score.

- There was a significant difference between the groups in terms of mean score on the MTUCE, with the experimental group achieving the higher score.

To summarize, the variables that did have a significant bearing on the association between economics background and interest in the subject were GPA, gender, age, type of high school attended (urban or rural), and political (conservative-liberal) orientation. Variables that were not statistically significant were family income, scores on the MTUCE, and whether economics was taken as a required course or an elective.

LaGarce, Raymond, and Horwitz, Pamela S.

"A Comparative Analysis of Student Achievement in "Principles of Marketing" at a Junior College and a Four-Year University."

The Journal of Economic Education. Vol. 10, No. 1. Fall 1978. Pp. 50-51.

The authors compared students in Principles of Marketing courses at Meramac Junior College and Southern Illinois University in terms of their knowledge at the beginning and at the end of the courses. Using the textbooks and manuals assigned in the courses, the authors constructed a 50-item multiple-choice pre-test and a similar post-test. Students were asked to indicate their gender, marital status, age, employment status, and academic class.

Means, standard deviations, variances and F ratios were obtained for both pre-test and post-test, and "t" tests were used to compare results. The pre-test results were compared with the demographic variables, and those same variables were analyzed against post-test results. Separations were then made for the pre-test and post-test at the two institutions.

There was no significant difference between entry-level and exit-level knowledge obtained by the two groups of students. There was a significant increase in knowledge in both institutions, and the knowledge gained was "compatible and similar." (Page 51.) The authors concluded that four-year colleges should therefore have no reservations about accepting the junior college transfer course for credit.

Lewis, Darrell R.

"The Preparation and Professionalization of Economics Instructors in Two-Year Colleges."

The Journal of Economic Education. Vol. 2, No. 1. Fall 1970. Pp. 22-30.

Lewis compared some of the results of Dawson's nationwide survey "Economics in Two-Year Colleges" (summarized earlier in this booklet) with surveys made in Minnesota and in Illinois. He thought that the national survey might be biased "because colleges with strong economics faculties probably were more likely to respond to the questionnaire it utilized." (Page 22.) He accepted the national survey's conclusion that at best only half of the economics instructors in two-year colleges had masters or doctorates in economics, and that less than half taught this subject on a full-time basis.

The national survey concluded that 38 percent of the teachers had not majored in economics either as graduates or undergraduates. In Minnesota, according to Lewis, 46 percent of the instructors had not majored in economics, and in Illinois the percentage was 70 percent. (The Illinois data were obtained from James V. Koch's unpublished report "The Faculty in Two-Year Colleges: The Case of Economics," produced at Illinois State University in 1968. The Minnesota data came from Lewis's A Decade of Economic Education in Minnesota, produced by the Minnesota Council on Economic Education in 1967.)

Lewis believed that supply and demand conditions explained these findings. He noted that the demand for economists was very high and thus few would accept employment in two-year colleges. The opportunity cost was simply too high. The relatively small number of students taking economics was another possible explanation. Lewis pointed to the results of his Minnesota survey indicating that junior college teachers tended to feel frustrated by such things as lack of "prestige" and inability to relate to professional associations of economists. Finally, it had been common practice in junior colleges to hire instructors who were secondary school teachers.

Lewis, Darrell R.; Wentworth, Donald R.; and Orvis, Charles C.

"Economics in the Junior Colleges: Terminal or Transfer?"

The Journal of Economic Education. Vol. 4, No. 2, Spring, 1973. Pp. 100-110.

Some junior colleges offer two economics courses, one of which is considered "terminal" and one of which is a "transfer" course. The former is often a non-technical introduction to economics that is not intended to replicate the conventional principles course and may not be accepted for transfer credit by four-year colleges. The other is very much like the typical principles course in the four-year college. The authors of this study compared student performance in the two types of courses, and then compared junior college students with four-year students in terms of economic learning.

Two junior college instructors in different two-year colleges in Minnesota were selected to participate in the study, which took place during the 1970-71 winter quarter. The instructors were similar in terms of age, experience, training, and teaching style. Both were teaching the terminal as well as the transfer course in their schools, and they were using the same materials and course syllabus. The terminal course, entitled Survey of Economics, was designed for students taking their only economics course and who were not likely to transfer to a four-year college. About two-thirds of the course content was macroeconomic in nature, and current issues were stressed. Five paperback books were used instead of the usual standard textbook, and graphs, formulas, and mathematical models were used sparingly. The transfer course, on the other hand, was a conventional macroeconomics course using Samuelson's textbook.

A total of 226 students in the junior colleges were tested. The students in the two schools were fairly well matched in terms of several student characteristics. The macro part of the Test of Understanding in College Economics (TUCE) was used for pre- and post-testing (Forms A and B, respectively).

The researchers feared that the TUCE might be biased in favor of the transfer group because that group received a more rigorous and intensive exposure to the macroeconomic concepts stressed in Part I of the TUCE. Their reservations proved to be unfounded, however. The transfer students had higher ACT scores, were older (by about 1.5 years), and achieved higher pre-TUCE scores. When controlling for these factors, along with prior interest in economics, gender and any possible influence of the instructor or school, it was found that there was no significant difference between the terminal and transfer students in terms of post-course performance. The significant predictors of post-TUCE scores were pre-test scores, ACT scores, and age. (For similar results see the study by Weidenaar and Dodson, summarized later in this booklet.)

Next, the performance of the junior college students was compared with that of four-year students. Generally, the former started and ended with lower TUCE scores, and achieved lower gain scores. Such factors as student ability (ACT scores), age, prior knowledge of economics, class standing, gender, and interest in economics were held constant in comparing 152 junior college transfer students with 690 University of Minnesota students in a regression analysis. The type of school did make a difference, with the junior college students achieving lower pre-test, post-test, and gain scores. The differences were significant at the .01 level. The authors could not explain the poorer performance of the junior college students, although they were of the opinion that junior college instructors might expect less, and thus predispose their students "to lower their own goals and contribute less to their own achievement." (Page 107.)

After recognizing the "tentative nature" of their results, the authors suggested that four-year institutions reconsider their policies regarding the acceptability of credit earned in the terminal economics courses taught in junior colleges. Because those taking the terminal course did as well (other things held equal) as those taking the more prestigious transfer courses, the researchers thought that junior colleges might be wasting their resources by offering the terminal as well as the transfer course. They also suggested that since the course modeled on the four-year college's conventional principles of economics course did not prove to be superior, the two-year schools should be encouraged to continue "to develop unique curricular offerings suited to the needs of their heterogeneous student clientele." (Page 109.)

Lumsden, Keith

"The Effectiveness of Programmed Learning in Elementary Economics"

American Economic Review, May 1967, pp. 652-659.

In his efforts to determine the effectiveness of a programmed textbook in introductory microeconomics, Lumsden tested students in four institutions of higher education -- a junior college and three universities. In the fall quarter of 1966-67, sections were selected at random from introductory economics classes. The control sections were taught in the conventional manner, while the experimental groups used a programmed textbook in microeconomics. All students took the same test, a multiple-choice examination with items taken primarily from the workbooks accompanying major introductory textbooks.

Simple regression analysis was used, with the average score on the test as the dependent variable. An effort was made to measure the students' "intellectual capacity," but it was not possible to pool the results because of diversification among schools in the measures of this variable. Thus, the use or non-use of the programmed textbook was the independent variable.

At the three universities there was no statistically significant difference between the scores of the control and experimental groups. At the junior college, however, students studying the programmed textbook did not do as well as those getting conventional instruction and using a conventional textbook. Lumsden thought that "Perhaps junior college students do not study conscientiously on their own." (Page 656.) He then ascertained the time spent studying economics, and found that the experimental section in the junior college devoted only 16 hours on the average, while the control students averaged over 27 hours. When study time was included as an independent variable it was found that there was no statistically significant difference between the scores of the experimental and control groups.

Lumsden felt that the quality of instruction might have been a factor. Perhaps the section taught by conventional means had an "outstanding" instructor.This section in the junior college did about as well on the test as the control sections in the universities. In all four colleges the students using the programmed textbook spent less time studying than did their colleagues in the conventional sections, but in the three universities they learned as much or more than the control groups.

Finally, students were asked whether they preferred programmed textbooks or conventional instruction. Although they seemed to have learned less, the junior college students were more inclined to prefer programmed instruction -- 68 percent expressing a preference for programming as compared with an average of 37 percent for the university students.

Machen, Willard

A Survey of Economic Education in Selected Texas Junior Colleges.

Masters thesis. Lubbock: Texas Tech University, 1972.

Machen sent questionnaires to economics instructors in public junior colleges in Texas, and received replies from about 82 percent of them. Forty-seven instructors representing 37 colleges returned the questionnaires. Machen also interviewed teachers at several of the junior colleges. His conclusions were as follows:

- In most colleges the economics program was limited to the Principles of Economics course, and this course was taken mostly by students planning to transfer to four-year colleges. Terminal students were "not often exposed to an economics course...."

- The textbooks used in the junior colleges were the same type as those used in senior colleges.

- About half the colleges put economics in a business department, and about half in a social science department.

- Most of the teachers held masters degrees. Few held doctorates, and few held only the bachelors degree. Only about 22 percent had had formal training or courses related to junior college instruction.

- Most instructors were not devoting their full time to the teaching of economics.

- Most economics instructors went into junior college teaching directly from graduate schools.

- Machen thought most of the classes were "too large" but noted that this statement was not "made with authority" because of the lack of research on optimum class size.

- Junior colleges should not be looked upon as "two more years of high school," but they do not resemble the four-year colleges either. Thus, Machen urged that they not be incorporated into high school or four-year college categories, but that they be treated as a separate entity with their own "special set of problems...."

- He found the junior college student to be "the crux of most junior college problems" because of the lack of academic motivation. Limited budgets and heavy teaching loads also presented problems.

Machen recommended the following:

- The number of economics courses offered in Texas junior colleges should be increased.
- The junior colleges should give "increased attention ... to the terminal students, as well as continued emphasis on a quality program for transfer students."
- More research on junior college economics is needed.
- There should be more communication between junior and senior colleges in regard to the teaching of economics.
- Greater efforts should be made to acquaint junior college teachers with the work of economic education organizations such as the Joint Council and the Texas Council on Economic Education.
- Senior colleges should offer courses or seminars on the teaching of elementary economics for those who are interested in junior college teaching.
- Graduate students in economics should be encouraged to consider teaching in junior colleges and should have the help of centers for economic education.

Memar, Ahmad B.

A Determination of Perceived Minimum Economic Understanding Needed by Community College Graduates in Mid-Management.

Houston, Texas: University of Houston School of Education, 1980. (Doctoral study in progress.)

Mr. Memar has designed a questionnaire tnat will be sent to economics instructors and others interested in mid-management training programs in community and junior colleges. His purpose is to "update and improve curriculum in community/junior colleges...." The questionnaire lists over 30 economic concepts, about evenly divided between microeconomic and macroeconomic topics. Respondents are asked to check "Extremely Important," "Very Important," "Moderately Important," "Slightly Important," or "Not Important" after each item. The respondents are also asked to give their highest degrees and number of years of experience in teaching economics and/or mid-management.

The researcher hopes that his study will "determine those essential economic understandings that community/junior college graduates of a mid-management program need to function effectively in their jobs...." The study will be limited to colleges in Texas that offer mid-management in their two-year programs.

The original design indicated that mid-management employees, mid-management employers, mid-management coordinators/instructors, and economics instructors would be polled. One-way analysis of variance was to be used to determine the significance of differences among the perceptions of these four groups regarding the minimum economic understanding needed. Difficulties in obtaining the necessary information, however, suggest that the first two groups may have to be dropped.

(The material quoted in this summary was taken from Mr. Memar's original research design. Other information was obtained from letters written by Mr. Memar to me.)

Miller, Jimmie C.

Analysis of the Effects of Student Learning Preferences, Study Time, Lecutres Attended and Achievement in Economics*

East Peoria: Illinois Central College, 1979. 14pp. Paper prepared for the 49th Annual Conference of the Southern Economic Association, Atlanta, Georgia, November 7-9, 1979.

Miller focused on "the student as a producer of knowledge" and incorporated the student's learning preferences, the instructor's teaching preferences, student study time, and the number of lectures attended as inputs. He administered Albert Canfield's Learning Styles Inventory at the beginning of the semester. (The Inventory was published by Humanics Media in Ann Arbor, Michigan, in 1976.) This measures the student's preference for one of four modes of learning. These are as follows:

(1) Listening (a preference for lectures, tapes, speeches, etc.).

(2) Reading (a preference for studying the written word).

(3) Iconics (a preference for films, slides, graphs, and illustrations).

(4) Direct experience (a preference for such activities as field trips, simulations, and laboratory work).

The instructor's preferences were measured by Canfield's Instructional Styles Inventory (Ann Arbor, Michigan: Humanics Media, 1976), which shows the extent to which a teacher is comfortable with each of the four learning styles.

It was hypothesized that students would learn more if their learning preferences coincided with those of the instructor. To measure the association, student preferences and instructor preferences were ranked, and a Spearman Rank correlation coefficient was computed. Data on student study time were collected each week, and records of attendance at lectures were kept. Miller used student study time as a proxy for the amount of labor used by the student in the production of knowledge. The number of lectures attended was seen as a measure of the amount of the teacher's human capital used by the student. Part I, form B, of the Test of Understanding in College Economics (TUCE) was used as a pre-test and post-test, with the latter being part of the final examination.

---

* Miller made two other studies of a similar nature, and these are listed in the bibliography. They are not summarized here, however, because Miller considered them to be "trial runs."

Miller used a two-equation model. Score on the pre-test (TUCE) was the dependent variable in equation #1. The ACT composite score was used as a proxy for general ability; student gender was used as a proxy for cultural bias (the fact that females often know less economics than males is probably the result of cultural factors); and age was a proxy for maturity. The post-TUCE score was the dependent variable in equation #2. The independent variables were the predicted pre-TUCE score (obtained from the estimation of equation #1); total hours of study time reported by the student for the semester; total number of lectures attended; and the Spearman Rank correlation coefficient measuring the correlation between instructor's preferred teaching mode and the student's preferred learning style.

The results of the estimation of equation #1 were that ACT and age were significant at the .05 level in explaining pre-TUCE scores, while gender was not. The results of the estimation of equation #2 were that the predicted pre-TUCE score and number of lectures attended were significant in explaining post-TUCE score. The explanatory variables accounted for about .29 of the variation in post-TUCE scores. Miller also conducted a Farrar-Glauber analysis to test for the location and pattern of collinearity. He obtained low F and "t" values, indicating an absence of multicollinearity.

Miller concluded that "the juxtaposition of learning and teaching preferences does not cause a student to produce more economic knowledge as measured by TUCE." (Page 13.) He thought it possible, however, that students whose learning preferences coincided with the instructor's teaching preferences were indeed more efficient in producing economic knowledge, but that they were using the time saved to study another subject or to enjoy more leisure activities.* Another conclusion was that for the group as a whole, study time was not significant; but the number of lectures attended was significant. For the less able students (those with predicted pre-TUCE scores between 10.4590 and 12.7647), however, both study time and the number of lectures attended were significant.

---

* For a discussion of this possible result, see Richard B. McKenzie and Robert J. Staaf, An Economic Theory of Learning (Blacksburg, Va.: University Publications, 1974), pp. 30-33.

Miller, Jimmie C.

Student Values and Achievement in Economics

East Peoria: Illinois Central Community College, 1975. 17pp. (Unpublished paper.)

Miller administered the Allport-Vernon-Linzey Study of Values and the "Hybrid" version of the TUCE to over 100 students in a macroeconomics course at Illinois Central Community College.* The Study of Values measures the relative importance of six personality types -- theoretical, economic, aesthetic, social, political, and religious. For example, the "economic" person is pragmatic (interested in the useful and the practical), wants to acquire tangible wealth, and judges things according to their utility in the everyday world. The "social" person is an altruist who loves other people and is kind, sympathetic, and unselfish. The "political" person is a highly competitive individual who wants influence, prestige, and power over others. (See Gordon Allport, Philip Vernon, and Gardner Lindzey, A Study of Values; Boston: Houghton Mifflin, 1960.)

The Hybrid TUCE was administered before and after the course. Along with the pre-test, data were obtained on the student's age, ACT score, and interest in economics. (In the latter case, the student was asked to rate his or her interest in economics as very high, high, average, low, or very low.)

Four dependent variables were used to measure student achievement, and multiple regression analysis was employed to determine the contribution of the independent variables to achievement. In the first model (Model I), the post-TUCE score was the dependent variable. The pre-TUCE score, ACT score, and student's age were significant in influencing the post-TUCE score. In Model II, the absolute change score was used to measure achievement (post-TUCE minus pre-TUCE score), and the same variables proved to be significant. (The coefficient for pre-TUCE was negative, suggesting the possibility of a "ceiling effect" with the 33-item Hybrid TUCE.) Model III used the gap-closing score, which measures relative improvement and compensates for the ceiling effect. (Gap closing score = Change Score divided by the student's potential improvement, or 33 minus the pre-TUCE score.) The student's age and ACT score were significant, pre-TUCE having been dropped as a predictor. (The R^2 for this model was low -- only .14 -- but this was significantly different from zero.) In Model IV the

* The Hybrid TUCE is a 33-item test using questions taken from the regular TUCE, which contains 132 questions. See Phillip Saunders and Arthur L. Welsh, "The Hybrid TUCE: Origin, Data and Limitations," The Journal of Economic Education, Fall 1975, pp. 13-19.

semester grade was the measure of achievement, and again the pre-TUCE score, student's age, and ACT scores were significant.

Most important for this summary, however, is that the variables related to the Study of Values were not significant in any of the models. Miller concluded: "Apparently, the values a student possesses, as measured by this test, have no influence on his achievement in economics since they are not statistically different from zero." (Page 12.) He further stated "...if cultural factors affect values, and if the Allport, Vernon, Lindzey test measures those values correctly, then an individual's culture and its corresponding value system have no effect upon his acquisition of economic knowledge. In addition, values, which lie in the affective domain, appear to have no effect on the cognitive domain, although the reverse may be true." (Page 14.)

* * * * * * * * * * *

Pasut, James E.

A Comparison of Economic Understandings Possessed by Students Enrolled in Introductory Courses at Four Iowa Area Community Colleges and Students Enrolled at Iowa's Three State Universities.

Ph.D. thesis. Iowa City: The University of Iowa, 1978. 178pp.

Pasut used the "Test of Understanding in College Economics" to compare students in three Iowa state universities with similar students in four community colleges. The pre-test result was used as co-variate. The "t" test was used, as was analysis of covariance. Pasut found that the university students achieved higher post-test scores on all parts of the TUCE, at the .05 level of significance. There were 1165 students in Pasut's sample.

Phillips, James A.

Class Size Effect on Community College Economic Education.

Cypress, California: Cypress Junior College, 1971. 8pp. Mimeographed.

Phillips experimented with the use of an approach that combined large class size (100 students) with small seminars (10 students in each). The large group met for two hours per week to hear lectures on economic theory. The small groups met once a week to discuss learning difficulties encountered by the students and current problems of interest to them. A control class of 50 students used the same text and materials, and was otherwise similar to the experimental class.

The Test of Economic Understanding (TEU) was administered on a pre-test and post-test basis to both classes. Both classes also completed quizzes, unit examinations, and a final examination. There was no significant difference between the two classes on the TEU pre-test, the experimental class achieving a mean of 23.4 and the control class a mean of 23.7.

The experimental class achieved a significantly higher gain score on the TEU (7.8 points as compared with 6.1 for the controls). The experimental students also achieved a higher average on the other tests -- 90.1 as compared with 82.1 for the controls. This was statistically significant. The superior performance of the experimental class occurred in spite of the fact that their rate of absences was significantly higher than that of the control students. Finally, the experimental students gave higher ratings to the course and often cited the seminar experience as being most valuable.

Phillips concluded that the large lecture class combined with small-group seminars produced "significant learning gains" and that the seminar discussions probably accounted for the difference between the experimental and control classes. He noted, however, that his sample was limited and that his results might not have general application.

Phillips, James A.

"Instructional Objectives in Community College Economic Education."

The Journal of Economic Education. Vol. 5, No. 2. Spring, 1974. Pp. 116-118.

To determine the extent to which instructional objectives are used, Phillips sent a questionnaire to 1,023 community college economics departments in the fall of 1971. He also asked about their use of programmed instruction, audiovisual materials, courses offered, and problems in transfer of credit to four-year colleges. He received 224 replies from schools in 43 states (a response rate of 21.9 percent).

About 40 percent of the respondents reported that they were using instructional objectives; and 30 percent of those not using them said they planned to do so. Nearly 60 percent said that they had one or more economists with a formal background in developing instruction objectives and that they were familiar with standard references such as Robert Mager's Preparing Objectives for Programmed Instruction (Palo Alto, California: Fearon Publishers, 1961).

Over 87 percent would be interested in using a set of objectives prepared by professionals, although many also said they might want to modify them. Many stated that their current objectives "were quite general in nature, and did not include statements of learning behavior, learning conditions or level of achievement required." (Page 117.) About 57 percent reported that student interest was "good" while 40 percent found it only "fair" and four percent said it was "poor."

A third of the respondents offered courses on a "credit/no-credit" basis, the remainder saying that grades were needed for students transferring to four-year colleges.

Programmed instruction was being used by 54 percent, and 30 percent of those not using it expressed interest in its future use. Most used programmed texts or workbooks to supplement traditional classroom lectures. Only two colleges had students use it on an independent study basis, coordinated with instructional objectives. Audiovisual materials were used by 79 percent, usually to supplement lectures. Some used films, but most were using transparencies designed to accompany standard texts. Only three colleges prepared their own slides, audio tapes, or video tapes.

All respondents offered both macro- and microeconomics, with macro coming first in 60 percent of the schools. Sixty percent also offered a one-semester survey course for non-majors. Consumer economics was offered by 20 percent. Five percent or less offered such "minor" courses as U.S. economic history, economic statistics, economic geography, and economic thought. Prerequisites (English or math) existed for 90 percent of the macro-micro courses, but for only 30 percent of the survey courses. Ninety-four percent reported no difficulty in transferring credits to four-year colleges.

Phillips, James A.

"Instructional Objectives and Economic Understanding."

The Journal of Economic Education. Vol. 3, No. 2. Spring 1972. Pp. 112-117.

Phillips wanted to find out if the use of instructional objectives would improve student performance in economics courses being taught in community colleges. He constructed a list of instruction objectives, using data obtained from a group of California community college economists, the National Task Force on Economic Education, the report Economic Education in California Junior Colleges by Thompson, Walthall, and Merson (see the Bibliography in this booklet), and various materials of the Joint Council on Economic Education.

Form B of the Test of Economic Understanding (TEU) was administered on a pre-test and post-test basis to 300 students in a one-semester economics survey course being taught in three California community colleges. The research took place in the fall of 1970. There were control and experimental classes in each school. The former were taught by the "traditional methodology," while the latter received copies of the instructional objectives. The textbooks, meetings, classrooms, etc., were similar for both groups, and the same instructor taught both the control group and the experimental group in each school.

Phillips examined post-test scores and gain scores. The overall difference between groups on the post-test was not significant at the .05 level. The absolute gain score of the controls was slightly higher than that of the experimental students, although the difference was not significant. The gap-closing score was also used. (This measures the extent to which a student closes the gap between the pre-test score and a perfect score. The absolute gain score is divided by the gap, which is the difference between the pre-test score and a perfect score.) On this measure, the experimental group did slightly better. They closed 22.6 percent of their gap, while the controls closed 21.6 percent.

There were differences among colleges. In two colleges the control groups achieved better gap-closing scores than the experimentals. In one school the experimentals did slightly better. Thus, the gap-closing analysis also failed to support claims for the superiority of the experimental treatment. Unfortunately, Phillips was not able to include grade point averages, ACT scores, or other measures of student ability. The instructors did not adopt uniform policies on using the post-test scores on the TEU. The one getting the highest post-test mean had used the TEU as the final examination. The one obtaining the lowest post-test mean had used it only as a "warm-up" for the regular final examination. These problems led Phillips to declare that his findings were "inconclusive." (Page 116.)

Phillips, James A.

Sabbatical Leave Report: Part II -- College Visits.

Cypress, California: Cypress Junior College, 1972. 41pp.

While on a sabbatical leave in 1972, Phillips visited 32 community colleges. The colleges were selected on the basis of a questionnaire he had sent during the fall of 1971 concerning the use of instructional objectives, individualized techniques, and the use of audio-visual materials. Those "responding most favorably" were visited. Although an examination of the colleges' economics programs was only one part of Phillips' activities, and although his sample cannot be said to represent all two-year colleges, his findings are interesting because they tend to reflect the results of several fact-finding studies.

Economics was often found to be the responsibility of the business division, with most colleges teaching the basic macro-micro principles course. Many also offered a survey course, and frequently the text used in that course was less rigorous than the text used in the standard principles offering.

Phillips noted a fairly wide variety of economics courses being offered, with economic history, money and banking, and seminars in economic problems being rather common. Among the somewhat unusual course offerings were "Chicano Economics," "Origins of Poverty," the economics of minority groups, and "Industrial Statistics." Some of the colleges were offering such courses as consumer economics, development, international economics, and agricultural economics.

Reichert, Edwin Clark

The Effect of High School Economics Upon Success in Junior College Economics.

M.A. thesis. Minneapolis: University of Minnesota, 1933. 39pp.

Reichert compared the achievement of students who had taken high school economics with those who had not had economics in high school, using a series of nine objective tests. The tests were administered during the 1932-33 academic year in an "Economic Life" course given at the Junior College of the University of Minnesota. The bi-serial "r" correlation technique was used.

Reichert concluded that "There is a slight but distinctly positive relation between having had high school economics and achievement in Economic Life." He found, however, that the student's score on Form B of the "Wesley Test in Social Terms" was "... a better means of predicting success in 'Economic Life' than is consideration of whether a student has had a high school course in economics."

Riddle, Terry L. and Frary, Robert B.

Relationships Between Economic Literacy and Opinions on Economic Issues.

Lynchburg: Central Virginia Community College, 1980. 4pp. + tables and references.

The researchers were attempting to ascertain the relationships between economic knowledge and opinions on economic issues. They tested 130 students in four community colleges in Virginia. Some were enrolled in the "transfer" course in principles of economics; others were in a one-quarter economics course for terminal or "occupational/technical" students. A variety of major fields was represented. Students ranged from 18 years of age to middle-age, and they were about equally divided between males and females.

The 33-item "Hybrid TUCE" was used to measure economic knowledge and a 40-item "Survey of Opinions on Economic Issues" was used to test attitudes. Riddle's "Survey" is made up of five scales designed to measure opinon changes in regard to labor unions, economic organizations and power structures, socialism and social welfare, economic freedom, and inflation. (See the summary of Riddle's other research project in this booklet.) The two tests were administered toward the end of the course. Data were obtained on student gender, age, marital status, academic status, and transfer or non-transfer goals.

The matrix of intercorrelations among the item scores on the Hybrid TUCE was subjected to a principal components analysis. The factor matrix had 14 eigenvalues greater than unity, which accounted for 67 percent of total variance. The number of factors was close to the number of areas of economics supposedly measured by the Hybrid TUCE. The authors then performed a varimax rotation of the first 14 factors, and inspected each factor to determine the topic of each item with a substantial loading. They found "absolutely no correspondence between content of the questions and the factors on which they loaded." (Page 3.) That is, "responses to questions in a given area of economics were not more highly intercorrelated among themselves than with responses to questions in other areas." This was interpreted to mean that there is no justification for the determination of subscores on the Hybrid TUCE. They saw the Hybrid TUCE as "appropriate only for measuring the general level of economic knowledge of an individual." Thus, Riddle and Frary used only the total scores from the Hybrid TUCE. Their findings were as follows:

- Student personal characteristics (such as marital status) were not correlated "to any meaningful degree with any of the attitude scales or with scores on the Hybrid TUCE." (Page 3.)

- Scores on the Hybrid TUCE correlated "to a meaningful extent" only with the scores on one of the five attitude scales --the scale dealing with socialism and social welfare. This reflected a "moderate tendency" for students with greater knowledge of economics to disagree with opinion statements favoring socialism or social welfare practices. (The coefficient of .48 was significant at the .001 level.)

The authors concluded that student personal characteristics seem to be unrelated to attitudes toward economic issues, and that knowledge of economics appeared to be unrelated to attitudes except for the one issue cited above. They asserted that "the almost total lack of relationships among the other variables argues strongly against stereotyping students on the basis of personal characteristics, knowledge, or attitudes." (Page 4.)

Riddle, Terry

"Student Opinions on Economic Issues: The Effects of an Introductory Economic Course."

The Journal of Economic Education. Vol. 9, No. 2, Spring 1978, pp. 111-114.

Also see his paper An Instrument for Measuring Student Opinion on Economic Issues. Richmond, Va.: J. Sargeant Reynolds Community College, 1975, 25pp. Presented at the Annual Meeting of the Virginia Association of Economists, Roanoke, April 15, 1977.

Pointing out that "few researchers have attempted to assess the impact of economics courses on student opinions," Riddle designed an instrument that might be used for ascertaining student opinions. Riddle attributed the dearth of research to the lack of a suitable measurement instrument.

He began by compiling an "initial pool" of 160 items on labor unions, economic organizations and power structures, socialism and social welfare, economic freedom, employment and inflation. He then developed a four-point Likert-type scale in which the student was to check "Agree," "Tend to Agree," "Tend to Disagree," or "Disagree." The test was submitted to four professors "familiar with the field of economics" and four professors of English. Their reactions resulted in reducing the number of items to 75. This procedure was designed to establish face validity.

Next, Riddle administered the test to about 100 students enrolled in a community college. No student had studied economics. The responses were factor analyzed into five groupings or scales, each of which was made up of statements designed to measure opinions toward the five issues listed above. As a result, 35 items were discarded because they would not correlate into the scales, leaving a total of 40 items and five scales. The 40 items were then "scrambled," and some were positively worded while others were negatively stated. The negative items were scaled in reverse so that the scoring would take the same direction on all items.

The test was administered to nearly 450 students in four community colleges in Virginia during one quarter, using the control-experimental, pre-test and post-test design. The economics course contained the treatment group, while the control group was made up of students in other courses who had not taken economics. These freshman and sophomore students represented a variety of disciplines.

Eight student characteristics were taken into account: (1)degree of dogmatism (as measured by items from the Rokeach scale); (2) student's age; (3) parents' education (this was also considered a measure of socio-economic status); (4) gender of student; (5) college attended; (6) grade in course; (7) whether or not student

was a transfer student; and (8) marital status. Riddle explained his analysis as follows:

> The criterion and covariates utilized were the five post-test and five pre-test economics attitude scores respectively. Eight multivariate analyses of covariance comparing two factors simultaneously were performed. In each analysis, one of the factors, economics treatment scores, was crossed with a second factor. These second factors represented the eight student characteristic variables. for example, the analysis utilizing dogmatism was contrasted with the economics treatment scores. The Survey ... was comprised of five separate scales. Therefore, each analysis actually crossed economics and a student characteristics with respect to scale 1, then scale 2, etc. This process was repeated for each of the eight student characteristics resulting in forty separate analyses. (Page 9 of original paper.)

Riddle concluded that "students' opinions toward economic issues are affected as a result of enrollment in a basic economics class." Specifically, students became more favorably disposed toward labor unions, expressed greater opposition to economic organizations and power structures, became less inclined to agree with socialism and social welfare, expressed greater approval of economic freedom, and did not change their opinions on inflation and employment.

There were differences between transfer and non-transfer students, and the college attended made a significant difference. As for marital status, single students were more inclined to favor socialism and social welfare than married students. There was a difference between dogmatic and non-dogmatic students in regard to the fifth scale, dealing with employment and inflation, as dogmatic students were more inclined to disagree with those items. (Highly dogmatic students supported "Leftist positions", according to Riddle.) There was a relationship between grade for the course and opinion changes. Generally, economics students adopted more conservative positions, although the changes were somewhat minimal." (Page 113.)

Schoenberger, Richard E.

Evaluation of the Leicester Project: An Experiment in the Teaching of Economic Principles.

Worcester, Mass.: Clark University, 1971.

This experiment involved the teaching of economic principles through the study of contemporary problems. Students in four principles of economics classes at Leicester Junior College were tested during the spring semester, 1971. Three classes received conventional instruction, while the experimental class was taught through the use of current articles, field trips, games, role playing, guest speakers and audiovisual aids as well as by lectures.

A 33-item cognitive test was administered both before and after the course. Unfortunately, there was a lack of uniformity in regard to the test, for in some classes it was part of the final exam and in others it was not. In an event, the mean score of the experimental group increased by a modest amount -- from 13.4 to 14.4 -- while the mean score for all three control groups actually decreased.

Schoenberger cautions against drawing firm conclusions from these results. The test was made up of both macro and micro concepts, whereas the course in which it was administered was a one-semester course that did not cover everything on the test. All the students had taken a macroeconomic principles course during the preceding semester, and this might have influenced their performance during the experimental semester.

The experimental group had been exposed to conventional instruction during the previous semester. They were asked to compare that experience with that of the experimental course. The result was unanimously in favor of the experimental class. Recognizing a number of "imperfections" in this study, Schoenberger nevertheless cautiously concluded that the experimental approach was at least as effective as the traditional.

---

* Others participating were Peter Sloane, Kevin Malley, and Joel Rekas of Clark Univeristy, and George Logan and Ted Snyder of Leicester Junior College.

Sterrett, Jack

A Comparative Study of Junior and Senior College Economics Programs in the Southeast.

Brunswick, Georgia: Brunswick Junior College, 1979. 57 pp. Paper presented at the annual meeting of the Southern Economic Association, Atlanta, November 8, 1979. Also see Saul Barr, ed., Economic Education in the Community/Junior College (Towson, Md.: Council on Economic Education in Maryland, 1979, pp. 4-61.)

This study is unusual, in that it covers a region rather than a single state or a sample of the nationwide population. Sterrett sent a detailed questionnaire to two-year and four-year colleges in the five southeastern states (Alabama, Florida, Georgia, North Carolina, and South Carolina). Both private and public institutions were included. He received replies from 155 of the 264 schools contacted. His report provides breakdowns by state as well as by type of school, but in this summary we shall concentrate only on the differences between types of institutions. The findings were as follows:

-Public two-year colleges are more likely to have two types of economics principles courses (one for majors and one for non-majors) than most of the other types of schools.

- The two-course principles sequence was about as common in the community and junior colleges as in other schools.

-In the majority of two-year colleges, economics is taught in a department or division of business. The two-year schools were much less likely to have a separate economics department. In over 20 percent of the two-year schools economics was the responsibility of a social science department or division, a very rare occurrence in the four-year institutions.

-The macro to micro sequence was favored by all institutions except the private universities, with the two-year schools showing the strongest preference for it.

-The two-year schools tended to have their principles courses taught by faculty members with the rank of instructor, while the teachers in four-year schools were usually assistant or associate professors.

-Only 19 or 20 percent of the two-year instructors held doctorates, as compared with a majority in the other colleges. Most of the two-year teachers held masters degrees. The junior and community colleges had a smaller percentage of full-time teachers of economics.

-Although males greatly outnumbered females in this sample (363 to 50), the percentage of female economics instructors was greater in the two-year public schools.

-Another unusual feature of this study was Sterrett's effort to determine the political orientation of the economics instructors. He found that those teaching in two-year colleges were much more likely to be "conservative oriented." Sixty-nine percent of those in public two-year colleges and 100 percent of those in private junior colleges rated themselves "conservative oriented." A small majority of the four-year colleges teachers were conservatives, while a substantial majority of the university teachers called themselves liberals.*

-Most schools assigned supplemental reading material (about 60 percent of the total), with private colleges and universities being most likely to do so. Very few colleges required the use of a readings book, however. The universities were most likely to require it (20 percent), and the four-year colleges were least likely to assign a readings book.

-The "descriptive lecture" was the mode of instruction used by the vast majority of all respondents, and objective tests were the most commonly used evaluation instruments. The two-year colleges were more likely to have a list of written objectives than any other type of schoo, but they were somewhat less inclined to provide students with a reading list.

-The two-year colleges agreed with the four-year schools that the most important objective of an economics course is to prepare the student to become a better informed citizen. (The universities favored the goal of developing analytical thinking skills necessary for economic understanding.) The two-year instructors agreed with their four-year and university colleagues in saying that the least important goal was to prepare the student for a professional career.

-The vast majority of all colleges used course evaluation questionnaires filled out by students to evaluate faculty.

Sterret found a variety of calendar systems in use, including semester, quarter, trimester, and 4-1-4 plans, with a majority of the two-year schools using the quarter system. He suggested that a uniform system be adopted to prevent confusion and make life easier for transfer students. He also urged teachers to develop a greater variety of instructional techniques to supplement or replace the "chalkboard lecture." He expressed fear that the heavy dependence of two-year colleges on part-time instructors might cause "content and quality" to suffer. Finally, he decried the fact that too few respondents were assigning supplmental readings, using books of readings, or distributing reading lists.

---

* Sterrett noted that many respondents did not answer this question and felt that it would have to be "reworked" if used in future studies.

Streifford, David M.

"Programmed Learning in Elementary Economics Courses -- An Experiment and Evaluation."

St. Louis, Missouri: Forest Park Community College, 1971. 9pp. + appendices.

In the fall of 1969 Streifford tested the effectiveness of programmed learning, using the two sections of a microeconomic principles course at Forest Park Community College in St. Louis. The control group was taught in the conventional manner, including lectures, "a sprinkling of discussion," and a standard textbook (McConnell). The experimental group also used McConnell's text, but in addition these students used Bingham's programmed text and did not attend class sessions. Streifford noted, however, that the experimental students "frequented the teacher's office regularly." Both groups received a set of educational objectives indicating the concepts that would be tested.

Streifford constructed three tests made up of items taken from the McConnell test file and administered these tests during the semester. His null hypothesis was that there would be no difference between the two groups in terms of performance on these tests. Then, one year later, he administered the final examination again to the two groups to see if the residual impact differed.

There was no significant difference between the groups in terms of performance on the three tests, but there was a difference at the .05 level on the test given a year later. Thus, the experimental section retained their knowledge of economics longer than the control students. Streifford concluded that "the lasting effects of programmed instruction for introductory economics students are significantly greater than of the conventional lecture/discussion design." He recommended that economics instructors "exorcise the traditionalism that envelops our educational institutions." He also warned, however, that the optimum learning experience has not been ascertained.

Symmes, S. Stowell

Economics Instruction in New Jersey's Junior Colleges: An Appraisal of an On-Going Curriculum Project.

New York: New York University, 1970. 19pp. Typewritten.

In reviewing the literature dealing with economics education in two-year colleges, Symmes detected a "general dissatisfaction with course content and with instructional techniques." (Page 2.) He cited studies predicting that by the mid-1970s nearly half of the introductory economics course work beyond the high school level would be provided by the faculties of two-year colleges. He went on to summarize studies made by Dawson, Kock, and Thompson, and noted the similarities in their findings. Symmes pointed out that "there appeared to be no great effort to offer junior college students a course tailor-made for their special needs." (Page 6.)

Because some studies suggested that fewer than five percent of all junior college students took economics courses, Symmes opined that "enrollment is low because the course is irrelevant to the particular needs of junior college students." (Page 7.) He then addressed the question of how the course content and the methods of instruction might be altered, using New Jersey as a case in point.

Symmes described the efforts of Professor Sidney Kronish of Montclair State College to involve junior college economists in an attempt to change the introductory economics course. Kronish sent a 10-item questionnaire to junior college instructors, asking for theri views on what textbook to use, how much time to devote to each topic, what kinds of supplementary materials to use, and the like. Few instructors provided detailed responses, but those who did reply seemed to corrobate Thompson's study in California. For example, there was general agreement on the course content but course objectives tended to be "rather general." The courses were "very traditional and largely textbook oriented." (Page 10.) Few were using audio-visual materials, and there was "no evidence of extensive use of the community as a learning laboratory in the introductory economics course in New Jersey's community colleges." (Page 10)

A committee was established to draft an experimental course, but the initial efforts showed "little in the way of dramatic innovation...." (Page 11.) Each member attempted to prepare a segment of the course, but the group was not satisfied with the resulting syllabus. Unfortunately, the plans to develop and test a new economics course for the New Jersey junior colleges did not materialize.

Thompson, Fred A.; Walthall, Wylie A.; and Merson, Thomas B.

Economics Education in California Junior Colleges: An Exploratory Study.

Modesto: California Junior College Association, 1967, and Washington, D.C.: U.S. Office of Education, 1967. 112pp.

In 1966-67 the authors collected data from California junior colleges in regard to economics course offerings and enrollment. The Test of Economic Understanding (TEU) was administered to samples of students in four junior colleges that were thought to be broadly representative. Two student groups in each college were tested. One was a cross-section of the student population; the other was made up of students completing a year-long study of economics in a course designed for those planning to enter a four-year college.

The mean score on the TEU was not significantly different from the mean achieved by the norming sample. (Note that the TEU was designed primarily for use in senior high schools and that the norming data were obtained from high school students. The TEU was being used widely in colleges, however, because the Test of Understanding in College Economics had not yet been published.) Students studying economics made statistically significant gains, but fewer than five percent of all students were taking the economics course. In comparing 315 junior college students with 167 four-year college sophomores in terms of performance on the TEU, the researchers found that the former achieved a post-test mean of 25.4 while the latter achieved a mean of 26.1.

This study also listed and analyzed the courses being offered in regard to their stated objectives and the concepts actually being taught. It was found that 97.5 percent of the 80 colleges surveyed offered a course in principles of economics considered to be comparable to the principles courses in four-year colleges. In addition, 31 percent offered a general economics course designed for terminal students. Among the other courses being taught was economic history (16 percent of the colleges) and consumer economics (45 percent of the colleges).

Thompson, Fred A.

Gaming Via Computer Simulation Techniques for Junior College Economics Education.

Riverside, California: Riverside City College, 1968. 68pp. Mimeographed.

This study was designed to determine if students in a macroeconomics course being taught by a computer simulation technique would learn more than those receiving conventional instruction. Several specific learning goals were established, such as: "Students will be able to identify and explain trade-off relationships between stable prices and the level of employment." In the simulation students acted as policy-oriented economists, armed with information on the past performance of the economy and with data on GNP, employment, price level, etc. They could influence the simulated economy by changing government spending or net taxes to achieve maximum economic growth consistent with full employment and price stability. Unemployment below a certain rate would bring inflation, for instance, and the students would have to compensate for changes in investment spending by changing actions in the public sector.

The experimental and control groups were closely matched in terms of mean scores on the School and College Ability Tests (SCAT) and the Test of Economic Understanding (TEU). The mean scores on the mid-term examination were also very close for the two groups. It was hypothesized that gaming would have a long-term impact. To test this, 20 questions (multiple-choice) previously used were repeated in the 150-item final examination taken by both groups. Although the experimental group achieved a slightly higher score on the 20 items (16.41 as opposed to 15.80) the difference was not significant. There was no significant difference in performance on the total final exam.

Total points earned during the course were used as the dependent variable in a multiple regression analysis. This showed that SCAT scores, previous grade point average, and previous knowledge of economics as measured by the TEU were significant, while the use of the game was not. The results might have been influenced, however, by the fact that the previous examination had been reviewed in class and that it was available in the library for students wishing to study in preparation for the final exam.

Although there was little difference in mean scores, there was a marked difference in the dispersion of final grades. All of the "A" grades and a greater proportion of the "F" grades were received by those in the experimental group, while the control students received a great many "C" grades. Nevertheless, it was concluded that the game was not a significant factor in student performance and that the cognitive objectives of the unit could be achieved with equal efficiency by gaming or by conventional methods.

The effect of gaming on student attitudes was another matter. An attitude questionnaire was administered to both groups before and after the unit. On the pre-test the two groups were nearly identical in being opposed to the attitudes toward economic principles that were held by the instructor. Both groups shifted their attitudes on the post-test, but the experimental group showed the greater tendency to change. Gaming also produced a more favorable attitude toward the course. The researcher felt that the experimental students were better able to discuss and evaluate economic issues, that they were more eager to participate, and that the experience generated interest in economics.

(For a summary of several studies of the use of computers in teaching economics, see John C. Soper's "Computer-Assisted Instruction in Economics: A Survey" in The Journal of Economic Education, Fall 1974, pp. 5-28. Also see William I. Davisson and Frank J. Bonello, Computer-Assisted Instruction in Economic Education published by the University of Notre Dame Press, Notre Dame, Indiana, 1976, and John Siegfried's review of that book in the Fall 1979 issue of The Journal of Economic Education, pp. 52-55.)

Thompson, Fred A.

"The Interaction of Cognition and Affect: The Issue of Free Trade."

The Journal of Economic Education. Vol. 4, No. 2, Spring 1973, pp. 111-115.

The hypothesis in this study was that a cognitive change will cause an affective change. Thompson tested the hypothesis by concentrating on one economic issue -- free trade. He used a ten-point multiple choice test to measure cognitive change, and an attitude survey made up of 66 statements to assess changes in opinion. Most of the statements were taken from the scale "Attitude Toward the Tariff" which appeared in L.L. Thurstone, ed., The Measurement of Social Attitudes (Chicago: University of Chicago Press, 1932) as reprinted in Marvin E. Shaw and Jack M. Wright, Scales for the Measurement of Attitudes (New York: McGraw-Hill, 1967), pp. 227-231. The statements were categorized as "strong" and "weak" and weighted accordingly. Thus a student checking "strongly agree" with a weak statement favoring free trade would get a score of 5 on that item, while strong agreement with a strong statement would bring a score of 6. The following are examples of strong and weak statements:

Strong: "Free trade is the solution to our economic problems."

Weak: "The benefits of free trade are somewhat greater than the evils."

Otherwise, Thompson's five-point scale was of the usual Likert type. The experimental group was a microeconomics class at Riverside City College in California. The students were pre- and post-tested with both the cognitive test and the attitude survey. Students in an introductory psychology class made up a control group. They were pre- and post-tested with the same instruments. With another small group of economics students Thompson administered the survey only on a post-test basis. He did this to control for any possible "sensitizing" that the pre-test might cause. (The pre-test might make the students more aware of the issue and react differently.) Finally, he also tested a class of graduate students at the University of California.

There was no difference between the means of the control and experimental groups on the pre-test. On the post-test, however, the economics students achieved a significant gain while the post-test score of the psychology class was almost unchanged. (A higher score meant greater approval of free trade.) The control group did not express pro-tariff sentiments; their mean score was close to the neutral position on both occasions. Thompson

concluded from this that there were no outside factors influencing student attitudes toward trade during this period. The mean scores for the experimental group increased on both tests, and there was a "fairly strong positive correlation between the two scores." (Page 114.) Thus, the hypothesis was supported -- an increase in knowledge seemed to change attitudes.

Next, Thompson compared the experimental group with the students who took the post-test but not the pre-test. He found a significant difference between their post-test scores (alpha level of .05). The post-test score of this special group was lower than the post-score of the experimental group (although still higher than that of the control group). This led Thompson to suggest the possibility that the pre-test did sensitize the experimental students to the issue. (This was a small group, however, and was made up of only 12 students who had not been present for the pre-test. Thus, other factors might have accounted for the difference, and no firm conclusion can be made on the question of sensitizing.")

Finally, the highest score of all was that of the graduate students, although it was not significantly different from the mean post-test score of the experimental group.

Thompson also attempted to find out if the control group students really gave thought to their answers. He selected three pairs of statements from the survey to check for consistency of responses. Each pair made the same point, but in a somewhat different manner. The fact that many inconsistent replies were noted suggested that the students had not given much thought to the statements or knew so little about the subject that intelligent responses were impossible.

In spite of the "imperfections...involved in the methodology data, and data interpretation..." Thompson concluded that "...our efforts do have an effect on the way students view the world." (Page 115.)

Thompson, Fred A.

"Problems and Prospects of Economics Education in Community Junior Colleges."

The Journal of Economic Education. vol. 2, no. 1. Fall 1970. pp. 31-38.

"A heterogeneous clientele and diverse educational objectives..." constitute the basic instructional problem facing junior college instructors, according to Thompson. This problem led to the consideration of different approaches to teaching economics. One approach tried by Thompson was the use of short units prepared for community college students. After about one hour of self-instruction in a unit on market demand, he found that 84 percent of the students achieved 80 percent or better on a multiple-choice test containing questions derived from behavioral objectives. (See the summaries of other papers by Thompson for his experiments with TIPS and with gaming.)

Thompson made a study involving 230 students enrolled in a one-semester "general and adult education economics course" at Riverside City College in California. They were found to have a wide range of academic abilities. SCAT verbal scores ranged from 251 to 335, while quantitative scores ranged from 256 to 337. The mean verbal placed them at the 43rd percentile, and the mean quantitative at the 35th percentile. The mean GPA for these students (excluding those who were just entering college) was 1.96. In the same classroom there were students with eighth-grade aptitudes and students "who could qualify for admission to some of the best four-year universities." (page 34.)

To ascertain what student characteristics were most important in explaining learning outcomes, Thompson used three dependent and eight independent variables in a multiple regression analysis. The former were scores on the Test of Economic Understanding (TEU), course grade and grade times TEU. The independent variables were SCAT scores, GPA, gender, probationary status (on probation or not on probation), terminal or transfer students, race (white or non-white), age, and marital status. Only the grade-point average and the SCAT score proved to be significant (Thompson did not think that there was a multicollinearity problem here. The correlation coefficient between GPA and SCAT was 0.28).

It was concluded that the community college attracts many students with aptitudes that are lower than those of students attending four-year colleges and that "attention should be directed at the needs, problems, and procedures which will effect major improvements in the economics curricula in community junior colleges." (Page 36.)

Thompson, Fred A.

'TIPS' in a Community College Setting.

Riverside, California: Riverside City College, 1978. 18pp. + appendices. Paper presented at a conference on "Innovations in Teaching the Introductory Course," St. Louis, Missouri, December 2, 1978. Also see J.R. Clark and Robert J. Sturm, Economics: Innovations in Teaching the Introductory Course (New York: Joint Council on Economic Education, 1979), pp. 53-78.

Although this study is similar to that made by David Garraty and summarized earlier in this booklet, it differs in some of the details of the research design. Thompson was also testing the effectiveness of TIPS in a community college, but he included more variables in his regression analysis and used a complete form of the Test of Understanding in College Economics (TUCE) rather than an abbreviated version. In addition, student performance on the TIPS surveys did have some effect on their course grades; and Thompson was covering macroeconomics while Garraty was covering micro.

Thompson administered four hour-long examinations during the semester. The items on these multiple-choice tests differed from those included in the TIPS surveys. The TUCE was then used "to independently assess course effectiveness." (Page 6.) Two dependent variables were used -- average score on the four tests and score on the TUCE. (Garraty used simple gain score means, gap-closing scores, and mean post-test scores.) Thompson's independent variables include SCAT scores, GPA, gender, ethnic group (caucasian or minority, a dichotomous variable), student's age, marital status, whether or not the student planned to transfer to a four-year college, major field (a dichotomous variable, with 1 = business major, and 0 = all others), and exposure to TIPS.

With the mean score on the four achievement tests as the dependent variable, TIPS, SCAT, and GPA proved to be significant at the .05 level. The coefficient of multiple determination was 0.61. TIPS raised performance on the examinations by an average of 6.7 points, an improvement of 10 percent on average exam scores for students using TIPS. With TUCE score as the dependent variable, however, TIPS did not prove to be statistically significant. SCAT, GPA, and gender (being female had a negative effect) were significant at the .05 level. The R^2 was now 0.52. Holding other factors constant, TIPS raised TUCE scores by one point, but this was only a two percent improvement in average TUCE scores and was not significant.

Thompson concluded that TIPS benefited both high ability and low ability students, but that low ability students received more benefits. The mean scores on the regular exams were higher in the TIPS classes than in the control class for both high

ability and low ability students, but the differences were greater for the low ability students. Finally, students reacted favorably to TIPS on a "Student Appraisal of Instruction Form."

(See the next two pages for an example of a TIPS print-out for a particular student who had completed a given survey, and for a print-out giving a summary report for all students taking one test.)

TIPS
STUDENT PROGRESS REPORT
PRINCIPLES OF MACROECONOMICS (07)
PROFESSOR FRED A. THOMPSON

ID # 129185
SECTION # 51, 9:00 AM MWF
SECTION LEADER: MR. THOMPSON

SURVEY # 10 (04/29/77)
FED MONETARY CONTROLS

YOU CORRECTLY ANSWERED 7 OUT OF THE 15 QUESTIONS ON THIS SURVEY. THE FOLLOWING TABLE SUMMARIZES YOUR ANSWERS AS WELL AS THE CORRECT ANSWERS FOR THIS SURVEY. YOU ARE URGED TO MAKE SURE THAT YOU UNDERSTAND THE NATURE OF ANY INCORRECT RESPONSES WHICH YOU MADE.

T A B L E O F R E S P O N S E S

QUES. NUMB.	YOUR ANSW.	CORR. ANSW.	QUES. NUMB.	YOUR ANSW.	CORR. ANSW.	QUES. NUMB.	YOUR ANSW.	CORR. ANSW.
1.	2	1	6.	1	1	11.	1	4
2.	1	3	7.	4	3	12.	3	2
3.	4	1	8.	1	1	13.	4	3
4.	2	3	9.	3	3	14.	3	3
5.	3	3	10.	4	4	15.	1	1

ALL PRESCRIBED WRITTEN WORK IS TO BE COMPLETED AND TURNED IN FOR GRADING AT THE CLASS MEETING OF WEDNESDAY, MAY 4.

QUANTITATIVE CONTROLS OF THE FED

--PREPARE AND TURN IN WRITTEN ANSWERS TO BEHAVIORAL OBJECTIVES NO. 2 AND NO. 6 FOUND ON PAGE 131 OF YOUR STUDY GUIDE. (THESE OBJECTIVES DEAL WITH RESERVE REQUIREMENTS AND OPEN-MARKET OPERATIONS.)

QUALITATIVE CONTROLS OF THE FED

--YOU MISSED ONE QUESTION IN THE CONCEPT AREA OF QUALITATIVE MONETARY CONTROLS. REVIEW QUESTIONS SEVEN THROUGH NINE ON YOUR SURVEY AND TRY TO UNDERSTAND THE CORRECT RESPONSES.

MONETARY POLICY

--ANSWER TRUE-FALSE QUESTIONS NOS. 9,10,11 AND 12 ON PAGES 129 AND 130 OF YOUR STUDY GUIDE. AFTER EACH QUESTION, EXPLAIN BRIEFLY IN WRITING WHY THE STATEMENT IS TRUE OR FALSE.

NOTICE: ALL STUDENTS WILL RETURN THEIR SURVEY 10 PRINTOUTS TOGETHER WITH ANY PRESCRIBED WRITTEN WORK ON WEDNESDAY, MAY 4 AT THE TIME OF YOUR CLASS MEETING. NO LATE WORK WILL BE GRADED OR ACCEPTED FOR CREDIT.

02/05/77

TIPS
PROFESSOR'S SUMMARY REPORT

PRINCIPLES OF MACROECONOMICS (07)
PROFESSOR FRED A. THOMPSON

	CLASS
NUMBER OF STUDENTS	96
NUMBER TAKING TEST # 1 -- BASIC ECONOMIC CONCEPTS	93
NUMBER RECEIVING STUDENT REPORT # 01 -- BASIC ECONOMIC CONCEPTS	96

TABLE OF AVERAGE SCORES — AVERAGE PCT. CORRECT

FILE	LABEL	CLASS (N= 93)
G151 --	SURVEY 1: BASIC ECONOMIC CONCEPTS ALL 20 QUESTIONS ON THE TEST	76.8
G152 --	KNOWLEDGE OF TERMS AND DEFINITIONS QSTS 1,2,3,4	87.6
G153 --	ECONOMIC METHODOLOGY QSTS 5,6,7,8	63.7
G154 --	GRAPHICAL ANALYSIS QSTS 9,10,11,12	81.7
G155 --	PITFALLS AND FALLACIES QSTS 13,14,15,16	79.6
G156 --	ECONOMICS AND ECONOMIC POLICY QSTS 17,18,19,20	71.2

ITEM ANALYSIS TABLE

NO.	ANS.	PERCENT CORRECT	PERCENT IN CLASS SELECTING ALTERNATIVE RESPONSES					
		CLASS (N= 93)	1	2	3	4	5	NO RESP.
1	3	98	0	1	98	0	0	1
2	3	98	1	1	98	0	0	0
3	3	90	0	0	90	2	0	0
4	2	65	3	65	14	17	0	1
5	1	68	68	15	15	1	1	0
6	1	33	33	3	4	59	0	0
7	1	56	56	28	15	1	0	0
8	1	98	98	0	2	0	0	0
9	2	68	22	68	1	9	0	1
10	1	80	80	14	1	5	0	0
11	2	95	2	95	1	2	0	0
12	2	85	5	85	8	2	0	0
13	2	84	9	84	3	3	0	1
14	1	88	88	2	2	8	0	0
15	4	88	2	4	5	88	0	0
16	4	58	82	1	9	58	0	0
17	2	86	4	86	4	5	0	0
18	3	60	12	9	60	19	0	0
19	2	55	16	55	26	3	0	0
20	2	84	4	84	10	2	0	0

Weidenaar, Dennis J. and Dodson, Joe A.

"The Effectiveness of Economics Instruction in Two-Year Colleges."

The Journal of Economic Education. Vol. 4, No. 1. Fall 1972, Pp. 5-12.

The authors attempted to measure the effectiveness of economics instruction in a non-random sample of two-year colleges and to identify factors that influence student performance in a one-semester macroeconomics course. Ten schools located in eight states were involved. The Test of Understanding in College Economics (TUCE) was administered to 677 junior college students. Form I-B (macroeconomics) was used, and the results were compared with those obtained from 473 four-year college students during the national norming of the TUCE.

The junior college students achieved a pre-test mean of 11.26, as compared with a mean of 13.71 for the four-year students. The post-test mean for the former group was 14.75, while for the norm group it was 19.25. The four-year students had gained 5.53 raw score points, while the junior college students achieved a mean gain of only 3.49. The percentage gain, using the pre-test as a base, was 31.0 for the junior college students and 40.3 for the four-year students.

A gap-closing score was also computed. This helps to overcome the ceiling effect of the 33-item TUCE. The higher one scores on the pre-test, the less room one has for improvement. The gap is the difference between the pre-test score and 33. The gain score is divided by the gap to obtain the gap-closing score. This shows the extent to which the student closed the gap between his or her pre-test score and a perfect score. This also revealed a poorer performance on the part of the junior college students. Their mean gap-closing score was 16.1, as compared with 28.6 for the four-year students.

Of course, there was considerable variation among the classes of the 11 instructors involved. Pre-test means ranged from a low of 10.27 to a high of 12.64. Post-test means ranged from 11.33 to 18.35. No junior college class achieved a pre-test or post-test mean as high as that of the four-year students.

The researchers included 16 independent variables in a regression analysis using post-test score as the performance criterion. Student age and ACT score proved to be significant at the .01 level. Having taken a previous college economics course was significant at the .05 level. Being a business major was significant at the .05 level, but the sign was negative (-1.06). That is, business majors achieved lower scores on the TUCE than other students. Among the variables that were not statistically significant were student's purpose (going to a four-year college or directly into a vocation), gender, class (freshman or sophomore), elective or required course, having had high school economics, pre-course grade expectations, interest in economics, high school size, majoring in science, engineering, or math, and having had algebra or calculus.

Weidenaar and Dodson then attempted to adjust for some of the differences between the junior college students and four-year college students. The regression coefficient for composite ACT score of the two-year students was .41, meaning that every additional point on the ACT was positively associated with .41 points on the TUCE. They wanted to find out if the difference on post-TUCE would disappear if the ACT scores of junior college students were equivalent to those of four-year students. They compared the two-year students with a group of 306 Purdue University students whose average ACT score was five points higher. The ACT scores of the junior college students were adjusted upward by five points to "achieve a common basis for comparability." (Page 9.) This added over 2 points to the two-year college score on the TUCE (5 x .41), raising the post-test mean to 16.5 However, this was still much lower than the post-test mean of 20.0 achieved by the Purdue students. Since the textbooks and other materials used by all instructors in the study were similar, the authors hypothesized that differences among teachers might explain the poorer showing of the junior college students.

The authors examined the economics backgrounds of the junior college instructors and administered the TUCE to them. They found a positive and statistically significant relationship between instructor preparation and TUCE performance, and student post-TUCE scores. That is, having an instructor with an M.A. in economics added one point to the post-TUCE score. Each year of teaching experience added .20 of a point to the students' post-TUCE score; and each question the instructor answered correctly on the TUCE added .11 of a point to the students' post-TUCE score.

Finally, the junior college students were asked to indicate their attitudes toward economics as a subject. Their interest in economics increased somewhat after taking the course, but they were less likely to consider it "very important" or "important." Both before and after taking the course the majority agreed that economics should be a required subject.

(This study corroborated Dawson's findings regarding the fact that four-year students did better than two-year students in economics. A different result was obtained, however, on the effect of teacher preparation and experience -- Dawson did not find this to be statistically significant, while Weidenaar and Dodson did. It should be noted that Weidenaar and Dodson obviously had better control over their participating instructors and that they included instructor performance on the TUCE, whereas Dawson considered only their credits in economics courses and their years of college teaching experience. Also, Dawson used gain scores while Weidenaar and Dodson used post-test scores in their model. Another difference is that Dawson used the old TEU (a test actually designed for 12th graders) while these researchers used the newer and more difficult TUCE.)

Wentworth, Donald R., and Lewis, Darrell R.

"An Evaluation of the Use of the Marketplace Game in Junior College Economics."

The Journal of Economic Education. Vol. 6, No. 2. Spring 1975. Pp. 113-119.

Also see the Journal of Experimental Education, Winter 1973, pp. 87-96, and Wentworth's doctoral thesis, "THE Effectiveness of a Learning Game for Teaching Introductory Economics in Selected Two-Year Colleges," University of Minnesota, 1972.

In the Marketplace game, participants buy and sell to acquire "units of satisfaction." In the process, they learn supply, demand, factors of production, circular flow of capital and goods, the functions of money, the profit motive, division of labor, and the market. In this study, 149 students taking introductory economics in two MInnesota junior colleges were tested. Two instructors with "similar characteristics" were chosen to teach the four classes, and each instructor was randomly assigned a control class and an experimental class.

In the two experimental classes the students used the game in place of eight class periods normally taught by the lecture method. Otherwise, the control and experimental groups were exposed to the same teaching techniques and course content. Pretests indicated that there were no significant differences between the two groups in terms of ability, interest, goals, age, and previous experience. The hybrid version of the Test of Understanding in College Economics (Hybrid TUCE) was used to measure the game's impact. All students were taking the "terminal" economics course, which stressed current issues and used few mathematical models or graphs.

Eight independent variables were used in a multiple linear regression model to analyze the effects of the game on economic knowledge. These were pre-test (Hybrid TUCE) scores, ACT scores, age, college attended, high school economics background, gender, pre-course interest in economics, and experimental or control class. The five that proved to be significant were pre-test score, ACT, age, college attended, and use of the game. The latter variable had a negative sign, however. That is, after controlling for prior knowledge of economics, ability, maturation, interest in economics, gender, and possible differential influences of the instructor or school, it was found that students using the game gained 1.43 points less than those receiving conventional instruction. Since most research shows that games are as good as (or better than) conventional methods, this result was surprising.

The authors noted that the difference in gain scores between experimental and control classes was "considerable." The average

student achieved a gain score of over three points. Thus, the loss of 1.43 gain score points attributable to the game was substantial. One would have to demonstrate other benefits, therefore, to justify the cost of using the game. The impact of the game on student attitudes toward the course and the instructors was measured through the use of a semantic differential scale. The experimental group gave the game positive evaluations and showed a more positive attitude toward the concept "Profits." There were no differences between groups in regard to their attitudes toward the instructor, the textbook, the lectures, and such economic concepts as market, producer, consumer, and banker. (Both groups developed more favorable attitudes toward these concepts.)

Fearing that the reaction scales used for the various concepts were measuring similar things, the researchers conducted a factor analysis. Four factors were found to explain 66 percent of the variance. The first factor was called "Economics (or Capitalism) Syndrome". In this factor there were positive loadings exceeding the criterion level for the concepts Bankers, Market Economy, Producers, Consumers, Profits, and Economics. The second factor was called "Instructional Process," and the elements receiving high loadings were Instructor, Economics, Discussion, and Lectures. The game did not receive a high loading -- indeed, there was a negative and insignificant relationship. The third factor was "Student Learning Behaviors," with factor loadings above the cutoff point (.400) for Textbook, Economics, and Independent Study. The game was "conspicuous by its absence. Students in this study did not associate the learning game with student learning activities in general." (Page 117.) The fourth factor was "Command Economy," which the students did not see as being related to other variables used in the study. It was actually negatively related to the variable Economics.

Finally, the "Instructional Process" factor was used as the dependent variable in a multiple linear regression model to see how the game influenced attitudes toward the instructional process. The post-test score (Hybrid TUCE) replaced the pre-test score as an independent variable and proved to be significant at the .05 level. Age was the other variable significantly associated with the student's attitude toward the instructional process. Thus, the game did not affect student attitudes toward the instructional process. (Most studies show that games have a positive impact on student attitudes.) The authors concluded that the "benefits associated with the game's use were few if any." (Page 118.)

EMPIRE STATE COLLEGE
LONG ISLAND REGIONAL CENTER
at OLD WESTBURY
STATE UNIVERSITY OF NEW YORK
P.O. BOX 130
OLD WESTBURY, NEW YORK 11568

TELEPHONE: (516) 997-4700

CENTER FOR BUSINESS & ECONOMIC EDUCATION
George G. Dawson, Director

The EMPIRE STATE COLLEGE CENTER FOR BUSINESS & ECONOMIC EDUCATION was established in December of 1975 and became affiliated with the New York State Council on Economic Education and the Joint Council on Economic Education in January of 1976. As part of the network of over 200 centers and councils on economic education in the United States, the Center is a non-profit, non-partisan, and non-political educational organization working to improve economic understanding at all educational levels.

The work of the EMPIRE STATE COLLEGE CENTER FOR BUSINESS & ECONOMIC EDUCATION includes research; the publication of bibliographies, research reports, materials for teachers, and other materials; conducting workshops for teachers; holding professional meetings and conferences; providing consultants and speakers for other organizations and schools; and answering requests for advice and information on economic education. The CENTER specializes in business and economic education for adults, and in the development of methods and materials for personalized, individualized and self-paced instruction. The CENTER also provides editorial management of The Journal of Economic Education, published by the Joint Council on Economic Education.

At this time (June, 1980) the staff of the CENTER includes the following members of the Empire State College faculty:

Dr. George G. Dawson, Professor of Economics

Mr. Richard Glassberg, Visiting Assistant Professor of Business

Mr. Robert Greenburg, Instructor in Business & Economics

Ms. Doris Kalisman, Adjunct Instructor in Career Education

Mr. Lester Levine, Professor of Business & Public Administration

Dr. Donald K. Park-Associate Professor of Business (on leave)

Dr. Elizabeth Steltenpohl, Professor of Education (on leave)

Dr. Jeffrey Sussman, Associate Professor of Economics

Dr. Rhoada Wald, Professor of Education

Secretary: Liz Tracy

AUG 29 1980
UNIVERSITY OF CALIFORNIA
ERIC CLEARINGHOUSE FOR
JUNIOR COLLEGES
96 POWELL LIBRARY BUILDING
LOS ANGELES, CALIFORNIA 90024
EE 36